

SEQUENCE LISTING

<110> Council of Scientific and Industrial Research

<120> A COMPUTATIONAL METHOD FOR THE IDENTIFICATION OF CANDIDATE PROTEINS
USEFUL AS ANTI-INFECTIVES

<130> Q63915

<160> 118

<170> PatentIn version 3.0

<210> 1

<211> 51

<212> PRT

<213> C. jejuni

<220>

<221> misc_feature

<223> highly acidic protein

<220>

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<223> gi|6967728

<400> 1

Met Ala Tyr Glu Asp Glu Glu Asp Leu Asn Tyr Asp Asp Tyr Glu Asn
1 5 10 15

Glu Asp Glu Glu Tyr Pro Gln Asn His His Lys Asn Tyr Asn Tyr Asp
20 25 30

Asp Asp Asp Tyr Glu Tyr Asp Asp Asp Asn Asn Asp Asp Asp Phe Tyr
35 40 45

Glu Met Asp
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<210> 2

<211> 32

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<213> C. jejuni

<220>

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<223> small hydrophobic protein

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<223> gi|6969129

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Met Thr Met Leu Asp Ile Phe Glu Ile Ile Phe Ile Thr Thr Val Val
1 5 10 15

Ile Ile Gly Phe Gly Gly Ile Val Phe Val Val Thr Lys Glu Lys Lys
20 25 30

<210> 3

<211> 57

<212> PRT

<213> C. jejuni

<220>

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<223> putative coiled coil protein

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<223> gi|6968493

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Met Ser Phe Glu Glu Asn Leu Lys His Ala Asn Glu Ser Leu Glu Lys
1 5 10 15

Leu Asn Asn Gln Glu Leu Ala Leu Asp Glu Ser Val Lys Ile Tyr Lys
20 25 30

Glu Gly Leu Glu Ser Ile Lys Lys Ala Arg Leu Glu Leu Glu Lys Ala
35 40 45

Lys Leu Glu Val Glu Gln Ile Asp Glu
50 55

<210> 4

<211> 542

<212> PRT

<213> C. jejuni

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<223> gi|6968611

<400> 4

Met Lys Ile Leu Leu Leu Asn Glu Asn Pro Val Val Ser Arg Leu Val

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1	5	10	15												
Ser	Leu	Ser	Ala	Lys	Lys	Met	Ser	Tyr	Asp	Phe	Glu	Glu	Leu	Asn	Ala
	20							25					30		
Tyr	Ser	Glu	Asn	Leu	Gly	Asn	Tyr	Asp	Val	Ile	Val	Val	Asp	Ser	Asp
	35						40					45			
Thr	Pro	Ala	Pro	Leu	Lys	Ile	Leu	Lys	Glu	Lys	Cys	Asp	Arg	Leu	Ile
	50					55					60				
Phe	Leu	Ala	Pro	Arg	Asn	Gln	Asn	Val	Glu	Asp	Ile	Asp	Ala	Gln	Ile
65					70					75					80
Leu	Gln	Lys	Pro	Phe	Leu	Pro	Thr	Asp	Phe	Leu	Asn	Leu	Leu	Asn	Asn
				85					90					95	
Lys	Asp	Ala	Asn	Lys	His	Thr	Ser	Ile	Asp	Leu	Pro	Met	Leu	Ser	Asn
			100					105					110		
Asp	Glu	Asn	Pro	Tyr	Ala	Asp	Ile	Ser	Leu	Asp	Leu	Asp	Asn	Leu	Asn
		115					120					125			
Leu	Asp	Asp	Leu	Pro	Asp	Glu	Asn	Ser	Leu	Asp	Ile	Asn	Ser	Glu	Gly
	130					135					140				
Met	Glu	Asp	Leu	Ser	Phe	Asp	Asp	Asp	Ala	Gln	Asp	Asp	Asn	Ala	Asn
145					150					155					160
Lys	Thr	Leu	Glu	Thr	Gln	Asn	Leu	Glu	His	Glu	Thr	Ile	Lys	Glu	Gln
				165					170					175	
Thr	Gln	Glu	Asp	Thr	Gln	Ile	Asp	Leu	Asp	Leu	Thr	Leu	Glu	Asp	Gly
		180						185					190		
Glu	Ser	Glu	Lys	Glu	Asp	Leu	Ser	Gln	Glu	His	Thr	Ala	Leu	Asp	Thr
		195					200					205			
Glu	Pro	Ser	Leu	Asp	Glu	Leu	Asp	Asp	Lys	Asn	Asp	Glu	Asp	Leu	Glu
	210					215					220				
Ile	Lys	Glu	Asp	Asp	Lys	Asn	Glu	Glu	Ile	Glu	Lys	Gln	Glu	Leu	Leu
225					230					235					240
Asp	Asp	Ser	Lys	Thr	Asn	Thr	Leu	Glu	Met	Gln	Glu	Glu	Leu	Ser	Glu
				245					250					255	
Ser	Gln	Asp	Asp	Asn	Ser	Asn	Lys	Thr	Leu	Glu	Thr	Gln	Asn	Leu	Glu
		260						265					270		
His	Asp	Asn	Leu	Glu	Gln	Glu	Thr	Ile	Lys	Glu	Gln	Thr	Gln	Glu	Asp
	275						280					285			
Thr	Gln	Ile	Asp	Leu	Asp	Leu	Thr	Leu	Glu	Asp	Gly	Glu	Ser	Glu	Lys
	290					295					300				

Glu Asp Leu Ser Gln Glu His Thr Ala Leu Asp Thr Glu Pro Ser Leu
 305 310 315 320
 Asp Glu Leu Asp Asp Lys Asn Asp Glu Asp Leu Glu Asp Asn Lys Glu
 325 330 335
 Leu Gln Ala Asn Ile Ser Asp Phe Asp Asp Leu Pro Glu Val Glu Glu
 340 345 350
 Gln Glu Lys Glu Met Asp Phe Asp Asp Leu Pro Glu Asp Ala Glu Phe
 355 360 365
 Leu Gly Gln Ala Lys Tyr Asn Glu Glu Ser Glu Glu Asn Leu Glu Glu
 370 375 380
 Phe Ala Pro Val Val Glu Glu Asp Ile Gln Asp Glu Ile Asp Asp Phe
 385 390 395 400
 Ala Ser Asn Leu Ser Thr Gln Asp Gln Ile Lys Glu Glu Leu Ala Gln
 405 410 415
 Leu Asp Glu Leu Asp Tyr Gly Ile Asp Ser Asp Asn Ser Ser Lys Val
 420 425 430
 Leu Glu Asp Phe Lys Asp Glu Pro Ile Leu Asp Asp Lys Glu Leu Gly
 435 440 445
 Thr Asn Glu Glu Glu Val Val Val Pro Asn Leu Asn Ile Ser Asp Phe
 450 455 460
 Asp Thr Leu Lys Glu Ser Asp Ile Gln Glu Ala Leu Gly Glu Glu Ile
 465 470 475 480
 Leu Glu Lys Asn Glu Glu Pro Ile Val Ser Asp Val Thr Lys Asp Asp
 485 490 495
 Asn Ser Glu Glu Ile Val Asn Glu Leu Ser Gln Ser Ile Ala Gly Ala
 500 505 510
 Ile Thr Ser Ser Ile Lys Asp Asp Thr Leu Lys Ala Ala Leu Lys Gly
 515 520 525
 Met Asn Met Asn Ile Asn Ile Asn Ile Ser Phe Lys Glu Asp
 530 535 540

<210> 5
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 <212> PRT
 <213> C. pneumoniaeCWL029

<220>
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 <223> histone like protein 2

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 <223> gi|4376663

<400> 5

Met Ile Gly Ala Gln Lys Lys Gln Ser Gly Lys Lys Thr Ala Ser Arg
 1 5 10 15
 Ala Val Arg Lys Pro Ala Lys Lys Val Ala Ala Lys Arg Thr Val Lys
 20 25 30
 Lys Ala Thr Val Arg Lys Thr Ala Val Lys Lys Pro Ala Val Arg Lys
 35 40 45
 Thr Ala Ala Lys Lys Thr Val Ala Lys Lys Thr Thr Ala Lys Arg Thr
 50 55 60
 Val Arg Lys Thr Val Ala Lys Lys Pro Ala Val Lys Lys Val Ala Ala
 65 70 75 80
 Lys Arg Val Val Lys Lys Thr Val Ala Lys Lys Thr Thr Ala Lys Arg
 85 90 95
 Ala Val Arg Lys Thr Val Ala Lys Lys Pro Val Ala Arg Lys Thr Thr
 100 105 110
 Val Ala Lys Gly Ser Pro Lys Lys Ala Ala Ala Cys Ala Leu Ala Cys
 115 120 125
 His Lys Asn His Lys His Thr Ser Ser Cys Lys Arg Val Cys Ser Ser
 130 135 140
 Thr Ala Thr Arg Lys His Gly Ser Lys Ser Arg Val Arg Thr Ala His
 145 150 155 160
 Gly Trp Arg His Gln Leu Ile Lys Met Met Ser Arg
 165 170

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 <212> PRT
 <213> C. trachomatis

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 <223> hypothetical protein-possible frameshift with CT593

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 <223> gi|3522902

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Met Phe Thr Leu Phe Leu Cys Glu His Leu Leu Thr Asn Ile Leu Ala
1 5 10 15
Ser Ser Phe Leu Ala Lys Ser Gln Gly Phe Ile Thr Leu Val Asn Leu
20 25 30
Phe His Lys Ile Pro Gly Leu Lys Val Ile Glu Ile Thr Cys Leu Ala
35 40 45
Leu Pro Leu Gly Ile His Ser Ile Ile Gly Phe Ser Tyr Leu Leu
50 55 60

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Met Asn Met Leu Gly Val Gln Lys Lys Cys Ser Thr Arg Lys Thr Ala
1 5 10 15
Ala Arg Lys Thr Val Val Arg Lys Pro Ala Ala Lys Lys Thr Ala Ala
20 25 30
Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys Thr Val Ala Arg
35 40 45
Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys Pro Val Ala Lys
50 55 60
Lys Ala Thr Ala Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys
65 70 75 80
Thr Val Ala Arg Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys
85 90 95
Pro Val Ala Lys Lys Ala Thr Ala Lys Lys Ala Pro Val Arg Lys Ala
100 105 110
Val Ala Lys Lys Thr Val Ala Arg Lys Thr Val Ala Lys Lys Thr Val
115 120 125

Ala Ala Arg Lys Pro Val Ala Lys Arg Val Ala Ser Thr Lys Lys Ser
130 135 140

Ser Ile Ala Val Lys Ala Gly Val Cys Met Lys Lys His Lys His Thr
145 150 155 160

Ala Ala Cys Gly Arg Val Ala Ala Ser Gly Val Lys Val Cys Ala Ser
165 170 175

Ala Ala Lys Arg Lys Thr Asn Pro Asn Arg Ser Arg Thr Ala His Ser
180 185 190

Trp Arg Gln Gln Leu Met Lys Leu Val Ala Arg
195 200

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<213> H. influenzae

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<223> outer membrane integrity protein (tolA)

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<223> gi|1573353

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Met Gln Asn Asn Arg Gln Lys Lys Gly Ile Asn Ala Phe Ala Ile Ser
1 5 10 15

Ile Leu Leu His Phe Ile Leu Phe Gly Leu Leu Ile Leu Ser Ser Leu
20 25 30

Tyr His Thr Val Glu Ile Met Gly Gly Gly Glu Gly Glu Gly Asp Val
35 40 45

Ile Gly Ala Val Ile Val Asp Thr Gly Thr Ala Ala Gln Glu Trp Gly
50 55 60

Arg Ile Gln Gln Gln Lys Lys Gly Gln Ala Asp Lys Gln Lys Arg Pro
65 70 75 80

Glu Pro Val Val Glu Glu Lys Pro Pro Glu Pro Asn Gln Glu Glu Ile
85 90 95

Lys His Gln Gln Glu Val Gln Arg Gln Glu Glu Leu Lys Arg Gln Gln
100 105 110

Glu Gln Gln Arg Gln Gln Glu Ile Lys Lys Gln Gln Glu Gln Ala Arg

115 120 125
130 135 140
145 150 155 160
165 170 175
180 185 190
195 200 205
210 215 220
225 230 235 240
245 250 255
260 265 270
275 280 285
290 295 300
305 310 315 320
325 330 335
340 345 350
355 360 365
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<213> H. influenzae

Gln Glu Ala Leu Glu Lys Gln Lys Gln Ala Glu Glu Ala Lys Ala Lys
130 135 140
Gln Ala Ala Glu Ala Ala Lys Leu Lys Ala Asp Ala Glu Ala Lys Arg
145 150 155 160
Leu Ala Ala Ala Ala Lys Gln Ala Glu Glu Glu Ala Lys Ala Lys Ala
165 170 175
Ala Glu Ile Ala Ala Gln Lys Ala Lys Gln Glu Ala Glu Ala Lys Ala
180 185 190
Lys Leu Glu Ala Glu Ala Lys Ala Lys Ala Val Ala Glu Ala Lys Ala
195 200 205
Lys Ala Glu Ala Glu Ala Lys Ala Lys Ala Ala Ala Glu Ala Lys Ala
210 215 220
Lys Ala Asp Ala Glu Ala Lys Ala Ala Thr Glu Ala Lys Arg Lys Ala
225 230 235 240
Asp Gln Ala Ser Leu Asp Asp Phe Leu Asn Gly Gly Asp Ile Gly Gly
245 250 255
Gly Ser Ala Ser Lys Gly Gly Asn Thr Asn Lys Gly Gly Thr Gln Gly
260 265 270
Ser Gly Ala Ala Leu Gly Ser Gly Asp Gly Gly Lys Val Gly Asp Gln
275 280 285
Tyr Ala Gly Val Ile Lys Lys Glu Ile Gln Arg Arg Phe Leu Lys Asp
290 295 300
Pro Asn Phe Ala Gly Lys Val Cys Arg Ile Lys Ile Gln Leu Gly Arg
305 310 315 320
Asp Gly Thr Ile Leu Gly Tyr Gln Lys Ile Ser Gly Ser Asp Asp Ile
325 330 335
Cys Ser Ala Ala Leu Ser Ala Val Ala Arg Thr Lys Lys Val Pro Ala
340 345 350
Ala Pro Ser Asp Glu Ile Tyr Glu Lys Tyr Lys Ser Pro Ile Ile Asp
355 360 365
Phe Asp Ile Arg
370

<220>
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 <223> thiamin ABC transporter, permease protein, putative

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Met Phe Ser Leu Phe His His Pro Gln Leu Arg Pro Arg His Tyr Ala
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Gly Gly Val Val Val Ile Ser Phe Ile Ile Leu Phe Tyr Gly Gly Ala
          20          25          30

Leu Ser Ser Ile Phe Ala Leu Gly Gly Glu Leu Gln Trp Arg Ala Trp
          35          40          45

Phe Thr Asp Asp Tyr Leu Gln His Leu Ile Leu Phe Ser Phe Gly Gln
          50          55          60

Ala Leu Leu Ser Thr Val Leu Ser Ile Phe Phe Gly Leu Leu Leu Ala
65          70          75          80

Arg Ala Leu Phe Tyr Lys Pro Phe Leu Gly Lys Lys Trp Leu Leu Lys
          85          90          95

Leu Met Ser Leu Thr Phe Val Leu Pro Ala Leu Val Val Ile Phe Gly
          100          105          110

Leu Ile Gly Ile Tyr Gly Ser Ser Gly Trp Leu Ala Trp Leu Ala Asn
          115          120          125

Leu Phe Gly Met Ser Trp Gln Gly His Ile Tyr Gly Leu Ser Gly Ile
          130          135          140

Leu Ile Ala His Leu Phe Phe Asn Ile Pro Leu Ala Ala Gln Leu Phe
145          150          155          160

Leu Gln Ser Leu Gln Ser Ile Pro Tyr Gln Gln Arg Gln Leu Ala Ala
          165          170          175

Gln Leu Asn Leu Gln Gly Trp Gln Phe Val Lys Leu Val Glu Trp Pro
          180          185          190

Val Phe Arg Gln Gln Cys Leu Pro Thr Phe Ser Leu Ile Phe Met Leu
          195          200          205

Cys Phe Thr Ser Phe Thr Val Val Leu Thr Leu Gly Gly Gly Pro Gln
210          215          220

Tyr Thr Thr Leu Glu Thr Ala Ile Tyr Gln Ala Ile Leu Phe Glu Phe

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225					230				235				240			
Asp	Leu	Pro	Lys	Ala	Ala	Leu	Phe	Ala	Met	Leu	Gln	Phe	Val	Phe	Cys	
				245				250				255				
Leu	Ile	Leu	Phe	Ser	Leu	Thr	Ser	Arg	Phe	Ser	Leu	Ser	Asn	Gln	Asn	
				260				265				270				
Gly	Leu	Ser	Asn	Ser	Asn	Ile	Trp	Phe	Glu	Lys	Pro	Lys	Ser	Ala	Val	
				275				280				285				
Lys	Ile	Phe	His	Ile	Leu	Val	Leu	Leu	Val	Phe	Val	Phe	Phe	Leu	Phe	
				290				295				300				
Ser	Pro	Val	Leu	Asn	Ile	Leu	Ile	Ser	Ala	Leu	Ser	Ser	Ser	Asn	Leu	
305					310				315				320			
Leu	Thr	Val	Trp	His	Asn	Ser	Gln	Leu	Trp	Arg	Ala	Leu	Gly	Tyr	Ser	
				325				330				335				
Leu	Ser	Ile	Ala	Pro	Leu	Ser	Ala	Leu	Leu	Ala	Leu	Thr	Met	Ala	Ile	
				340				345				350				
Ala	Leu	Leu	Leu	Leu	Ser	Arg	Arg	Leu	Glu	Trp	Leu	His	Tyr	Gln	Lys	
				355				360				365				
Ile	Ser	Gln	Phe	Ile	Ile	Asn	Ala	Gly	Met	Val	Ile	Leu	Ala	Ile	Pro	
				370				375				380				
Ile	Leu	Val	Leu	Ala	Met	Gly	Leu	Phe	Leu	Leu	Leu	Gln	Asp	Arg	Asp	
385					390				395				400			
Phe	Ser	Asn	Ile	Asp	Leu	Phe	Ile	Ile	Val	Val	Phe	Cys	Asn	Ala	Leu	
				405				410				415				
Ser	Ala	Met	Pro	Phe	Val	Leu	Arg	Ile	Leu	Ser	Ala	Pro	Phe	His	Asn	
				420				425				430				
Asn	Met	Arg	Tyr	Tyr	Glu	Asn	Leu	Cys	Asn	Ser	Leu	Gly	Ile	Val	Gly	
				435				440				445				
Trp	Gln	Arg	Phe	Tyr	Leu	Ile	Glu	Trp	Lys	Thr	Leu	Arg	Ala	Pro	Leu	
				450				455				460				
Arg	Tyr	Ala	Phe	Ala	Leu	Gly	Leu	Ala	Leu	Ser	Leu	Gly	Asp	Phe	Thr	
465					470				475				480			
Ala	Ile	Ala	Leu	Phe	Gly	Asn	Gln	Glu	Phe	Thr	Ser	Leu	Pro	His	Leu	
				485				490				495				
Leu	Tyr	Gln	Gln	Leu	Gly	Asn	Tyr	Arg	Asn	Gln	Asp	Ala	Ala	Val	Thr	
				500				505				510				
Ala	Gly	Ile	Leu	Leu	Leu	Leu	Cys	Gly	Ile	Leu	Phe	Ala	Phe	Ile	His	
				515				520				525				

Thr Tyr Arg Asp Ala Asp Asp Leu Ser Lys
530 535

<210> 10
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<213> H. influenzae

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<223> heme exporter protein B (ccmB)

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<223> gi|1574645

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Met Ile Phe Leu Glu Ile Ile Lys Arg Glu Leu Gln Ile Ala Met Arg
1 5 10 15

Lys Asn Ala Glu Ile Leu Asn Pro Leu Trp Phe Phe Leu Leu Val Ile
20 25 30

Thr Leu Phe Pro Leu Val Ile Gly Pro Asp Pro Lys Leu Leu Ser Arg
35 40 45

Ile Ala Pro Gly Ile Ala Trp Val Ala Ala Leu Leu Ser Ala Leu Leu
50 55 60

Ser Phe Glu Arg Leu Phe Arg Asp Asp Phe Ile Asp Gly Ser Leu Glu
65 70 75 80

Gln Leu Met Leu Thr Ala Gln Pro Leu Pro Met Thr Ala Leu Ala Lys
85 90 95

Val Val Ala His Trp Leu Leu Thr Gly Leu Pro Leu Ile Leu Leu Ser
100 105 110

Pro Ile Ala Ala Leu Leu Leu Ser Leu Glu Val Asn Ile Trp Trp Ala
115 120 125

Leu Val Leu Thr Leu Leu Leu Gly Thr Pro Val Leu Ser Cys Ile Gly
130 135 140

Ala Ile Gly Val Ala Leu Thr Val Gly Leu Arg Lys Gly Gly Val Leu
145 150 155 160

Leu Ser Leu Leu Val Val Pro Leu Phe Ile Pro Val Leu Ile Phe Ala
165 170 175

Ser Ser Val Leu Glu Ala Ala Gly Leu Asn Val Pro Tyr Gly Gly Gln

180 185 190
 Leu Ala Ile Leu Gly Ala Met Met Val Gly Ala Val Thr Leu Ser Pro
 195 200 205

Phe Ala Ile Ala Ala Ala Leu Arg Ile Ser Leu Asp Asn
 210 215 220

<210> 11
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 <223> recombination protein (rec2)

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 <223> gi|1573009

<400> 11

Met Lys Leu Asn Leu Ile Thr Leu Val Val Leu Leu Ile Val Ala Asp
 1 5 10 15
 Leu Thr Leu Leu Phe Leu Pro Gln Pro Leu Leu Leu Pro Trp Gln Val
 20 25 30
 Ala Leu Val Ile Ala Leu Val Leu Ile Phe Leu Phe Ile Phe Leu Arg
 35 40 45
 Arg Asn Phe Leu Val Ser Leu Ala Phe Phe Val Ala Ser Leu Gly Tyr
 50 55 60
 Phe His Tyr Ser Ala Leu Ser Leu Ser Gln Gln Ala Gln Asn Ile Thr
 65 70 75 80
 Ala Gln Lys Gln Val Val Thr Phe Lys Ile Gln Glu Ile Leu His Gln
 85 90 95
 Gln Asp Tyr Gln Thr Leu Ile Ala Thr Ala Thr Leu Glu Asn Asn Leu
 100 105 110
 Gln Glu Gln Arg Ile Phe Leu Asn Trp Lys Ala Lys Glu Val Pro Gln
 115 120 125
 Leu Ser Glu Ile Trp Gln Ala Glu Ile Ser Leu Arg Ser Leu Ser Ala
 130 135 140
 Arg Leu Asn Phe Gly Gly Phe Asp Arg Gln Gln Trp Tyr Phe Ser Lys
 145 150 155 160

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450	455	460
Ala Gly Ile Phe Met Leu Ile Ile Trp Asn Ile Tyr Arg Glu Pro Glu 465	470	475 480
Ile Ser Ser Ser Asn Trp Gln Ile Lys Arg Ala Lys Phe Phe Thr Leu 485	490	495
Asn Leu Ser Lys Pro Leu Leu Lys Asn Glu Arg Ile Asn Val Leu Arg 500	505	510
Cys Ser Phe Gly Ile Ile Leu Leu Cys Phe Thr Ile Leu Leu Phe Lys 515	520	525
Gln Leu Ser Lys Pro Thr Trp Gln Val Asp Thr Leu Asp Val Gly Gln 530	535	540
Gly Leu Ala Thr Leu Ile Val Lys Asn Gly Lys Gly Ile Leu Tyr Asp 545	550	555 560
Thr Gly Ser Ser Trp Arg Gly Gly Ser Met Ala Glu Leu Glu Ile Leu 565	570	575
Pro Tyr Leu Gln Arg Glu Gly Ile Val Leu Glu Lys Leu Ile Leu Ser 580	585	590
His Asp Asp Asn Asp His Ala Gly Gly Ala Ser Thr Ile Leu Lys Ala 595	600	605
Tyr Pro Asn Val Glu Leu Ile Thr Pro Ser Arg Lys Asn Tyr Gly Glu 610	615	620
Asn Tyr Arg Thr Phe Cys Thr Ala Gly Arg Asp Trp His Trp Gln Gly 625	630	635 640
Leu His Phe Gln Ile Leu Ser Pro His Asn Val Val Thr Arg Ala Asp 645	650	655
Asn Ser His Ser Cys Val Ile Leu Val Asp Asp Gly Lys Asn Ser Val 660	665	670
Leu Leu Thr Gly Asp Ala Glu Ala Lys Asn Glu Gln Ile Phe Ala Arg 675	680	685
Thr Leu Gly Lys Ile Asp Val Leu Gln Val Gly His His Gly Ser Lys 690	695	700
Thr Ser Thr Ser Glu Tyr Leu Leu Ser Gln Val Arg Pro Asp Val Ala 705	710	715 720
Ile Ile Ser Ser Gly Arg Trp Asn Pro Trp Lys Phe Pro His Tyr Ser 725	730	735
Val Met Glu Arg Leu His Arg Tyr Lys Ser Ala Val Glu Asn Thr Ala 740	745	750

Val Ser Gly Gln Val Arg Val Asn Phe Phe Gln Asp Arg Leu Glu Ile
755 760 765

Gln Gln Ala Arg Thr Lys Phe Ser Pro Trp Tyr Ala Arg Val Ile Gly
770 775 780

Leu Ser Lys Glu
785

<210> 12

<211> 505

<212> PRT

<213> H. pylori

<220>

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<223> poly E-rich protein

<220>

<221> misc_feature

<223> gi|2313421

<400> 12

Met Lys Met Ile Leu Phe Asn Gln Asn Pro Met Ile Thr Lys Leu Leu
1 5 10 15

Glu Ser Val Ser Lys Lys Leu Glu Leu Pro Ile Glu Asn Phe Asn His
20 25 30

Tyr Gln Glu Leu Ser Ala Arg Leu Lys Glu Asn Gln Glu Trp Leu Leu
35 40 45

Ile Ala Asp Asp Glu Cys Leu Glu Lys Leu Asp Gln Val Asp Trp Leu
50 55 60

Glu Leu Lys Glu Thr Ile Ser Gln Asn Lys Asn Ser Val Cys Met Tyr
65 70 75 80

Lys Lys Gly Asn Glu Ala Gln Pro Phe Leu Glu Gly Phe Glu Val Lys
85 90 95

Ile Lys Lys Pro Phe Leu Pro Thr Glu Met Leu Lys Val Leu Gln Lys
100 105 110

Lys Leu Gly Ser Asn Ala Ser Glu Leu Glu Pro Ser Gln Asn Leu Asp
115 120 125

Pro Thr Gln Glu Val Leu Glu Thr Asn Trp Asp Glu Leu Glu Asn Leu
130 135 140

Gly Asp Leu Glu Ala Leu Val Gln Glu Glu Pro Asn Asn Glu Glu Gln

145 150 155 160
Leu Leu Pro Thr Leu Asn Asp Gln Glu Glu Lys Glu Glu Val Lys Glu
165 170 175
Glu Glu Lys Glu Glu Val Lys Glu Glu Glu Lys Glu Glu Val Lys Glu
180 185 190
Glu Glu Lys Glu Glu Val Lys Glu Thr Pro Gln Glu Glu Lys Lys Pro
195 200 205
Lys Asp Asp Glu Thr Gln Glu Gly Glu Thr Leu Lys Asp Lys Glu Val
210 215 220
Ser Lys Glu Leu Glu Ala Pro Gln Glu Leu Glu Ile Pro Lys Glu Glu
225 230 235 240
Thr Gln Glu Gln Asp Pro Ile Lys Glu Glu Thr Gln Glu Asn Lys Glu
245 250 255
Glu Lys Gln Glu Lys Thr Gln Asp Ser Pro Ser Ala Gln Glu Leu Glu
260 265 270
Ala Met Gln Glu Leu Val Lys Glu Ile Gln Glu Asn Ser Asn Gly Gln
275 280 285
Glu Asn Lys Glu Lys Thr Gln Glu Ser Ala Glu Ile Pro Gln Asp Lys
290 295 300
Glu Ile Gln Glu Val Val Thr Glu Lys Thr Gln Ala Gln Glu Leu Glu
305 310 315 320
Val Pro Lys Glu Lys Thr Gln Glu Ser Ala Glu Ala Leu Gln Glu Thr
325 330 335
Gln Ala His Glu Leu Glu Lys Gln Glu Ile Ala Glu Thr Pro Gln Asp
340 345 350
Val Glu Ile Pro Gln Ser Gln Asp Lys Glu Val Gln Glu Leu Glu Ile
355 360 365
Pro Lys Glu Glu Thr Gln Glu Asn Thr Glu Thr Pro Gln Asp Val Glu
370 375 380
Thr Pro Gln Glu Lys Glu Thr Gln Glu Asp His Tyr Glu Ser Ile Glu
385 390 395 400
Asp Ile Pro Glu Pro Val Met Ala Lys Ala Met Gly Glu Glu Leu Pro
405 410 415
Phe Leu Asn Glu Ala Val Ala Lys Ile Pro Asn Asn Glu Asn Asp Thr
420 425 430
Glu Thr Pro Lys Glu Ser Val Thr Glu Thr Ser Lys Asn Glu Asn Asn
435 440 445

Thr Glu Thr Pro Gln Glu Lys Glu Glu Ser Asp Lys Thr Ser Ser Pro
 450 455 460

Leu Glu Leu Arg Leu Asn Leu Gln Asp Leu Leu Lys Ser Leu Asn Gln
 465 470 475 480

Glu Ser Leu Lys Ser Leu Leu Glu Asn Lys Thr Leu Ser Ile Lys Ile
 485 490 495

Thr Leu Glu Asp Lys Lys Pro Asn Ala
 500 505

<210> 13
 <211> 60
 <212> PRT
 <213> H. pylori

<220>
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 <223> histidine-rich, metal binding polypeptide (hpn)

<220>
 <221> misc_feature
 <223> gi|2314604

<400> 13

Met Ala His His Glu Glu Gln His Gly Gly His His His His His His
 1 5 10 15

His Thr His His His His Tyr His Gly Gly Glu His His His His His
 20 25 30

His Ser Ser His His Glu Glu Gly Cys Cys Ser Thr Ser Asp Ser His
 35 40 45

His Gln Glu Glu Gly Cys Cys His Gly His His Glu
 50 55 60

<210> 14
 <211> 72
 <212> PRT
 <213> H. pylori

<220>
 <221> misc_feature
 <223> histidine and glutamine-rich protein

<220>
 <221> misc_feature
 <223> gi|2314605

<400> 14

Met Ala His His Glu Gln Gln Gln Gln Gln Gln Ala Asn Ser Gln His
1 5 10 15
His His His His His Ala His His His His Tyr Tyr Gly Gly Glu His
20 25 30
His His His Asn Ala Gln Gln His Ala Glu Gln Gln Ala Glu Gln Gln
35 40 45
Ala Gln Gln Gln Gln Gln Gln Gln Ala His Gln Gln Gln Gln Gln Lys
50 55 60
Ala Gln Gln Gln Asn Gln Gln Tyr
65 70

<210> 15

<211> 1139

<212> PRT

<213> M. genitalium

<220>

<221> misc_feature

<223> cytodherence-accessory protein

<220>

<221> misc_feature

<223> gi|1046012

<400> 15

Met Ala Lys Asn Lys Gln Ser Val Phe Glu Glu Lys Asn Tyr Thr Gln
1 5 10 15
Thr Glu Pro Glu Asn Ile Phe Gly Asp Leu Tyr Asp Gly Lys Ser Thr
20 25 30
Val Glu Glu Asp Pro Asn Ile Lys Val Ala Tyr Asp Ala Asp Gly Asn
35 40 45
Gly Tyr Tyr Ile Ala Phe Asn Lys Glu Thr Gly Val Tyr Tyr Asp Pro
50 55 60
Tyr Gly Asp Thr Glu Tyr Asp Ile Ser Gln Leu Phe Asp Glu Asn Gly
65 70 75 80
Asn Pro Phe Val Phe Asp Glu Lys Gln Glu Glu Asn Asp Tyr Leu Lys
85 90 95
Tyr Val Gly Asn Pro Asp Tyr Gly Ser Tyr Asp Glu Asn Gly Glu Trp

100 105 110
Val Trp Ser Gly Tyr Phe Glu Asn Asp Gln Trp Ile Ser Thr Lys Glu
115 120 125
Ser Gln Pro Thr Asp Glu Asn Tyr Gly Phe Asp Ser Asp Leu Pro Pro
130 135 140
Glu Val Lys Gln Pro Glu Ser Val Glu Asp Asn Tyr Gly Phe Asp Asn
145 150 155 160
Asp Leu Pro Pro Glu Val Lys Gln Pro Glu Ser Val Glu Asp Asn Tyr
165 170 175
Gly Phe Asp Asn Asp Leu Pro Pro Glu Val Lys Gln Pro Glu Ser Val
180 185 190
Val Asp Gln Pro Ser Ser Asp Asp Tyr Phe Ala Lys Gln Pro Thr Asp
195 200 205
Glu Asn Tyr Gly Phe Asp Asn Asp Leu Pro Pro Glu Val Lys Gln Pro
210 215 220
Glu Ser Val Val Asp Gln Pro Ser Ser Asp Asp His Phe Ala Lys Gln
225 230 235 240
Pro Glu Ser Thr Thr Asp Ser Tyr Ser Phe Asp Ser Asp Leu Pro Gln
245 250 255
Pro Thr Leu Asp Gln Pro Ser Leu Asp Asp His Val Gln Tyr Asn Phe
260 265 270
Asp His His Glu Glu Leu Lys Pro Val Ala Glu Glu Gln Asn Asn Tyr
275 280 285
Gln Val Gly Phe Asp Gln Val Gln Ala Asn Leu Asp Asn Asn Glu Glu
290 295 300
Ile Gln Pro Thr Ala Glu Lys Lys Val Thr Thr Asp Phe Glu Ser Lys
305 310 315 320
Gln Ala Gln Val Val Asp Ser Tyr Gln Leu Pro Ile Asp Thr Asp Gln
325 330 335
Gln Asp Gln Thr Thr Phe Ser Ser Ser Phe Glu Thr Gln Pro Thr Val
340 345 350
Glu Gln Phe Asp Gln Val Asn Ser Glu Val Asn Asp Gln Phe Lys Pro
355 360 365
Glu Ile Thr Lys Glu Pro Val Leu Glu Ser Ser Phe Asn Lys Gln Asp
370 375 380
Val Val Glu Thr Ser Asp Leu Asn Ser Glu Ser Asn Leu Tyr Ser Glu
385 390 395 400

1000 900 800 700 600 500 400 300 200 100 0

Val	Val	Glu	Thr	Ser	Asn	Tyr	Thr	Asn	Asn	Leu	Gln	Lys	Phe	Asp	Ile	
690						695					700					
Gln	Ser	Asp	Asn	Lys	Ile	Thr	Ile	Thr	Thr	Lys	Lys	Ser	Ser	Pro	Gln	
705					710					715					720	
Ile	Pro	Thr	Thr	Leu	Pro	Ile	Ser	Phe	Val	Ser	Asn	Arg	Ile	Glu	Tyr	
				725					730					735		
Lys	Pro	Val	Glu	Thr	Leu	Ala	Leu	Asp	Asn	Lys	Glu	Ser	Gln	Gln	Glu	
			740					745					750			
Gln	Ile	Thr	Ile	Asn	Ser	Ile	Thr	Glu	Asp	Ser	Lys	Thr	Leu	Ala	Lys	
		755					760					765				
Thr	Leu	Ser	Val	Gln	Leu	Gln	Gln	Ile	Asn	Ser	Leu	Asn	Asn	Gln	Ser	
770						775					780					
Ile	Val	Thr	Ser	Glu	Ser	Val	Arg	Leu	Asp	Lys	Lys	Asp	Asp	Gln	Leu	
785					790					795					800	
Thr	Ile	Asn	Thr	Val	Asn	Ser	Glu	Asp	Gln	Gln	Pro	Lys	Ile	Glu	Val	
				805					810					815		
Phe	Val	Lys	Ala	Lys	Glu	Pro	Val	Glu	Glu	His	Ser	Ile	Thr	Gln	Asn	
			820					825					830			
Lys	Gln	Ser	Val	Glu	Asp	Lys	Ser	Glu	Leu	Asp	Asn	Phe	Asn	Lys	Lys	
		835					840					845				
Ser	Asp	Leu	Tyr	Lys	Ile	Ile	Ser	Glu	Leu	Lys	Arg	Gly	Glu	Leu	Asn	
	850					855					860					
Pro	Thr	Ile	Asn	Phe	Asp	Ala	Ile	Phe	Gln	Met	Asn	Asp	Tyr	Gln	Met	
865					870					875					880	
Ser	Val	Lys	Gln	Ser	Phe	Ile	His	Leu	Asn	Asp	Phe	Val	Thr	Asn	Tyr	
				885					890					895		
Lys	Asn	Gln	Ile	Ser	Glu	Arg	Tyr	Leu	Ile	Ile	Lys	Lys	Glu	Leu	Gln	
		900						905					910			
Ser	Glu	Leu	Ser	Arg	Leu	Ile	Asp	Gln	Asn	Glu	Asn	Leu	Asn	Val	Gln	
	915						920					925				
Phe	Asn	Asn	Ala	Lys	Asn	Leu	Thr	Thr	Leu	Gln	Lys	Glu	Glu	Met	Ile	
	930					935					940					
Arg	Ser	Leu	Ala	Ser	Asp	Phe	Ala	Ile	Ala	Tyr	Lys	Pro	Ser	Asn	Ser	
945					950					955					960	
Tyr	Glu	Gln	Leu	Gln	Lys	Ser	Gly	Glu	Ile	Met	Arg	His	Val	Gln	Arg	
			965						970					975		
Ala	Ile	Thr	Glu	Asn	Glu	Lys	Lys	Ile	Glu	Ser	Ile	Gln	Gly	Ser	Leu	

980

985

990

Lys Gln Leu Lys Thr Val Tyr Asn Ser Cys Cys Glu Thr Ile Met Asn
 995 1000 1005

Asn Ile Asn Lys Leu Asp Asn Thr Leu Arg Phe Ala Lys Lys Glu
 1010 1015 1020

Lys Asp Pro Leu Leu Leu Ser Asn Phe Asp Ser Val Thr Asp Asn
 1025 1030 1035

Gly Leu Val Glu Pro Asn Gln Leu Met Asp Asp Leu Ile Asp Phe
 1040 1045 1050

Ser Asn Thr Phe Asp Asn Ile Ser Asn Glu Gln Leu Asp Asp Phe
 1055 1060 1065

Ile Tyr Glu Asn Met Asp Arg Asn Ile Asp Phe Glu Phe Glu Gly
 1070 1075 1080

Phe Asn Asn Asp Phe Val Asp Ile Asp Ala Lys Val Met Asp Ser
 1085 1090 1095

Met Ser Ala Phe Ser Val Asn Asp Leu Asp Ile Glu Thr Leu Val
 1100 1105 1110

Pro Asp Arg Thr Ser Asn Phe Ser Ser Leu Leu Asp Glu Asp Leu
 1115 1120 1125

Phe Glu Ser Ser Gly Asp Phe Ser Leu Asp Tyr
 1130 1135

<210> 16

<211> 1616

<212> PRT

<213> M. genitalium

<220>

<221> misc_feature

<223> cytodherence-accessory protein

<220>

<221> misc_feature

<223> gi|1046097

<400> 16

Met Pro Lys Thr Thr Lys Asn Lys Asn Lys Asn Thr Thr Pro Lys Ser
 1 5 10 15

Lys Thr Lys Lys Tyr Leu Glu Ser Ala Asn Lys Lys Ser Val Thr Lys
 20 25 30

[illegible]

Gln Ile Ser Asp Glu Ile Lys Leu Glu Glu Lys Thr Glu Ala Val Phe
915 920 925

Asp His Gln Gln Leu Glu Asn Gln Ser Glu Glu Thr Val Val Thr Pro
930 935 940

Thr Glu Val Thr Ala Phe Glu Pro Glu Thr Ile Glu Thr Gln Leu Glu
945 950 955 960

Pro Ser Ser Glu Asp Gln Pro Ser Glu Pro Ala Leu Asp Gln Asn His
965 970 975

Pro Glu Ile Val Thr Ala Glu Val Glu Gln Ile Phe Asp Gly Thr Lys
980 985 990

Leu Glu Asp Leu Lys Leu Glu Glu Ala Asn Phe Asp Asn Val Glu Asn
995 1000 1005

Asn Glu Val Gln Pro Lys Glu Thr Glu Ala Glu Ile Thr Phe Asp
1010 1015 1020

Glu Thr Lys Glu Leu Gln Gln Glu Thr Ser Ser Glu Pro Leu Ser
1025 1030 1035

Thr Glu Glu Leu Lys Ser Glu Ala Thr Phe Asp Asn Val Ser Glu
1040 1045 1050

Ala Glu Ser Glu Ala Val Phe Glu Lys Pro Gln Leu Glu Thr Gln
1055 1060 1065

Thr Glu Lys Ile Leu Glu Glu Glu Pro Lys Ser Glu Pro Val Asp
1070 1075 1080

Gln Leu Ile Thr Glu Ala Ser Phe Asp Thr Val Lys His Glu Ala
1085 1090 1095

Val Phe Asp Lys Asn Gln Thr Gln Thr Glu Gly Leu Glu Glu Pro
1100 1105 1110

Gln Val Ser Ser Glu Ala Glu Val Val Asp Gln Thr Thr Thr Asp
1115 1120 1125

Thr Val Gly Glu Pro Glu Ala Val Phe Asp Val Gln Pro Glu Lys
1130 1135 1140

Thr Thr Glu Val Lys Phe Asp Asp Val Glu Asn Gln Gln Lys Val
1145 1150 1155

Ile Ser Glu Pro Gln Val Glu Gln Gln Pro Gly Glu Ala Val Phe
1160 1165 1170

Glu Pro Ser Ala Glu Ala Lys Phe Asp Ser Pro Val Glu Ser Val
1175 1180 1185

Gln Asp Ser Gln Pro Glu Pro Val Leu Glu Glu Val Gln Thr Gln

1190 1195 1200
Pro Glu Ile Gln Pro Val Glu Ser Gln Pro Glu Ala Thr Phe Asp
1205 1210 1215
Thr Val Gln Pro Glu Gln Thr Pro Gln Glu Ala Lys Phe Asp Ser
1220 1225 1230
Pro Val Glu Thr Val Glu Gln Pro Glu Phe Ser Ser Glu Pro Thr
1235 1240 1245
Gln Gln His Val Glu Ser Glu Ala Ser Phe Asp Glu Pro Asn Tyr
1250 1255 1260
Asp Phe Asp Glu Pro Asn Tyr Asp Phe Asp Gln Pro Ser Tyr Asp
1265 1270 1275
Ser Asp Leu Gln Pro Ser Glu Pro Gln Tyr Asp Val Asp Glu Pro
1280 1285 1290
Asn Tyr Asp Phe Asp Glu Pro Asn Tyr Glu Ile Glu Ser Lys Pro
1295 1300 1305
Ser Glu Pro Gln Phe Glu Pro Gln Val Glu Gln Gln Pro Gly Glu
1310 1315 1320
Ala Val Phe Glu Pro Ser Ala Glu Ala Lys Phe Asp Ser Pro Val
1325 1330 1335
Glu Ser Val Gln Asp Ser Gln Pro Glu Pro Leu Leu Glu Glu Val
1340 1345 1350
Gln Thr Gln Pro Glu Ile Gln Pro Val Glu Ser Gln Pro Glu Ala
1355 1360 1365
Thr Phe Asp Thr Val Gln Pro Glu Gln Thr Pro Gln Glu Ala Lys
1370 1375 1380
Phe Asp Ser Pro Val Glu Thr Ile Gln Glu Pro Gln Val Ser Ser
1385 1390 1395
Glu Pro Glu Val Val Val Gln Pro Asn Phe Glu Glu Arg Lys Pro
1400 1405 1410
Glu Thr Val Leu Glu Glu Pro Gln Ala Asp Glu Ile Gln Pro Glu
1415 1420 1425
Ala Ser Glu Glu Glu Ser Leu Asp Trp Glu Leu Leu Val Gly Asn
1430 1435 1440
Asn Ser Tyr Gly His Tyr Glu Pro Asp Gly Glu Trp Val Trp Ala
1445 1450 1455
Gly Phe Phe Gly Asp Asp Gln Lys Trp Asn Lys Asp Ala Thr Val
1460 1465 1470

Lys Trp Ala Arg Glu Arg Asp Tyr Leu Pro Leu Ile Gly Asp Glu
 1475 1480 1485
 Val Tyr Gly Arg Tyr Asn Asn Lys Gly Glu Trp Ile Trp Tyr Gly
 1490 1495 1500
 Phe Tyr Asp Glu Ser Gly Asp Trp Val Leu Val Asp Glu Gln Trp
 1505 1510 1515
 Lys Asn Arg Gln Pro Arg Ile Asn Glu Ala Pro Lys Phe Trp Glu
 1520 1525 1530
 Lys Leu Ile Gly Asn Glu Glu Tyr Gly Tyr Tyr Glu Asp Asn Glu
 1535 1540 1545
 Trp Asn Trp Tyr Asp Gly Glu Phe Asp Ser Glu Gly Asn Trp Leu
 1550 1555 1560
 Val Phe Gln Ser Glu Glu Thr Glu Asn Leu Asn Glu Asp Ile Thr
 1565 1570 1575
 Lys Asp Ile Pro Ala Leu Glu Gly Tyr Asp Ile Asp Ser Ile Asp
 1580 1585 1590
 Ala Asp Glu Trp Leu Ser Gln Phe Ser Ala Asp Asp Ala Lys Asp
 1595 1600 1605
 Val Phe Gly Ser Asn Asp Lys Lys
 1610 1615

<210> 17
 <211> 274
 <212> PRT
 <213> M. pneumoniae
 <220>
 <221> misc_feature
 <223> 30K adhesin-related protein

<220>
 <221> misc_feature
 <223> gi|1674069

<400> 17

Met Lys Leu Pro Pro Arg Arg Lys Leu Lys Leu Phe Leu Leu Ala Trp
 1 5 10 15
 Met Leu Val Leu Phe Ser Ala Leu Ile Val Leu Ala Thr Leu Ile Leu
 20 25 30
 Val Gln His Asn Asn Thr Glu Leu Thr Glu Val Lys Ser Glu Leu Ser

35					40					45					
Pro	Leu	Asn	Val	Val	Leu	His	Ala	Glu	Glu	Asp	Thr	Val	Gln	Ile	Gln
50						55					60				
Gly	Lys	Pro	Ile	Thr	Glu	Gln	Ala	Trp	Phe	Ile	Pro	Thr	Val	Ala	Gly
65					70				75						80
Cys	Phe	Gly	Phe	Ser	Ala	Leu	Ala	Ile	Ile	Leu	Gly	Leu	Ala	Ile	Gly
				85					90					95	
Leu	Pro	Ile	Val	Lys	Arg	Lys	Glu	Lys	Arg	Leu	Leu	Glu	Glu	Lys	Glu
			100					105					110		
Arg	Gln	Glu	Gln	Leu	Ala	Glu	Gln	Leu	Gln	Arg	Ile	Ser	Ala	Gln	Gln
		115					120					125			
Glu	Glu	Gln	Gln	Ala	Leu	Glu	Gln	Gln	Ala	Ala	Ala	Glu	Ala	His	Ala
	130					135					140				
Glu	Ala	Glu	Val	Glu	Pro	Ala	Pro	Gln	Pro	Val	Pro	Val	Pro	Pro	Gln
145					150					155					160
Pro	Gln	Val	Gln	Ile	Asn	Phe	Gly	Pro	Arg	Thr	Gly	Phe	Pro	Pro	Gln
				165					170						175
Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly	Met	Pro	Pro	His	Pro	Gly	Met	Ala
			180					185					190		
Pro	Arg	Pro	Gly	Phe	Pro	Pro	Gln	Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly
		195					200					205			
Met	Pro	Pro	His	Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly	Phe	Pro	Pro	Gln
	210					215					220				
Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly	Met	Pro	Pro	His	Pro	Gly	Met	Ala
225					230						235				240
Pro	Arg	Pro	Gly	Phe	Pro	Pro	Gln	Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly
			245						250					255	
Met	Gln	Pro	Pro	Arg	Pro	Gly	Met	Pro	Pro	Gln	Pro	Gly	Phe	Pro	Pro
		260						265					270		

Lys Arg

<210> 18
 <211> 256
 <212> PRT
 <213> M. tuberculosis

<220>
 <221> misc_feature
 <223> PE_PGRS

<220>
<221> misc_feature
<223> gi|3261822

<400> 18

Met Ile Gly Asp Gly Ala Asn Gly Gly Pro Gly Gln Pro Gly Gly Pro
1 5 10 15
Gly Gly Leu Leu Tyr Gly Asn Gly Gly His Gly Gly Ala Gly Ala Ala
20 25 30
Gly Gln Asp Arg Gly Ala Gly Asn Ser Ala Gly Leu Ile Gly Asn Gly
35 40 45
Gly Ala Gly Gly Ala Gly Gly Asn Gly Gly Ile Gly Gly Ala Gly Ala
50 55 60
Pro Gly Gly Leu Gly Gly Asp Gly Gly Lys Gly Gly Phe Ala Asp Glu
65 70 75 80
Phe Thr Gly Gly Phe Ala Gln Gly Gly Arg Gly Gly Phe Gly Gly Asn
85 90 95
Gly Asn Thr Gly Ala Ser Gly Gly Met Gly Gly Ala Gly Gly Ala Gly
100 105 110
Gly Ala Gly Gly Ala Gly Gly Leu Leu Ile Gly Asp Gly Gly Ala Gly
115 120 125
Gly Ala Gly Gly Ile Gly Gly Ala Gly Gly Val Gly Gly Gly Gly Gly
130 135 140
Ala Gly Gly Thr Gly Gly Gly Gly Val Ala Ser Ala Phe Gly Gly Gly
145 150 155 160
Asn Ala Phe Gly Gly Arg Gly Gly Asp Gly Gly Asp Gly Gly Asp Gly
165 170 175
Gly Thr Gly Gly Ala Gly Gly Ala Arg Gly Ala Gly Gly Ala Gly Gly
180 185 190
Ala Gly Gly Trp Leu Ser Gly His Ser Gly Ala His Gly Ala Met Gly
195 200 205
Ser Gly Gly Glu Gly Gly Ala Gly Gly Gly Gly Gly Ala Arg Gly Glu
210 215 220
Ala Gly Ala Gly Gly Gly Thr Ser Thr Gly Thr Asn Pro Gly Lys Ala
225 230 235 240
Gly Ala Pro Gly Thr Gln Gly Asp Ser Gly Asp Pro Gly Pro Pro Gly

245

250

255

<210> 19
 <211> 484
 <212> PRT
 <213> M. tuberculosis

<220>
 <221> misc_feature
 <223> PE_PGRS

<220>
 <221> misc_feature
 <223> gi|2894254

<400> 19

Ala Gln Ala Ser Pro Ala Ala His Gly Gly Ser Gly Gly Ala Gly Gly
 1 5 10 15
 Asn Gly Gly Ala Gly Ser Ala Gly Asn Gly Gly Ala Gly Gly Ala Gly
 20 25 30
 Gly Asn Gly Gly Ala Gly Gly Asn Gly Gly Gly Gly Asp Ala Gly Asn
 35 40 45
 Ala Gly Ser Gly Gly Asn Gly Gly Lys Gly Gly Asp Gly Val Gly Pro
 50 55 60
 Gly Ser Thr Gly Gly Ala Gly Gly Lys Gly Gly Ala Gly Ala Asn Gly
 65 70 75 80
 Gly Ser Ser Asn Gly Asn Ala Arg Gly Gly Asn Ala Gly Asn Gly Gly
 85 90 95
 His Gly Gly Ala Gly Gly Ser Gly Asp Thr Gly Gly Ala Gly Gly Ala
 100 105 110
 Gly Gly Gln Gly Gly Phe Gly Gly Thr Gly Gly Ser Gly Ser Gly Ile
 115 120 125
 Gly Gly Gly Ala Gly Gly Asn Gly Gly Asn Gly Gly Ala Gly Gly Thr
 130 135 140
 Gly Val Val Leu Gly Gly Lys Gly Gly Asp Gly Gly Asn Gly Asp His
 145 150 155 160
 Gly Gly Pro Ala Thr Asn Pro Gly Ser Gly Ser Arg Gly Gly Ala Gly
 165 170 175
 Gly Ser Gly Gly Asn Gly Gly Ala Gly Gly Asn Ala Thr Gly Ser Gly
 180 185 190

Gly Lys Gly Gly Ala Gly Gly Asn Gly Gly Asp Gly Ser Phe Gly Ala
195 200 205

Thr Ser Gly Pro Ala Ser Ile Gly Val Thr Gly Ala Pro Gly Gly Asn
210 215 220

Gly Gly Lys Gly Gly Ala Gly Gly Ser Asn Pro Asn Gly Ser Gly Gly
225 230 235 240

Asp Gly Gly Lys Gly Gly Asn Gly Gly Ala Gly Gly Asn Gly Gly Ser
245 250 255

Ile Gly Ala Asn Ser Gly Ile Val Gly Gly Ser Gly Gly Ala Gly Gly
260 265 270

Ala Gly Gly Ala Gly Gly Asn Gly Ser Leu Ser Ser Gly Glu Gly Gly
275 280 285

Lys Gly Gly Asp Gly Gly His Gly Gly Asp Gly Val Gly Gly Asn Ser
290 295 300

Ser Val Thr Gln Gly Gly Ser Gly Gly Gly Gly Gly Ala Gly Gly Ala
305 310 315 320

Gly Gly Ser Gly Phe Phe Gly Gly Lys Gly Gly Phe Gly Gly Asp Gly
325 330 335

Gly Gln Gly Gly Pro Asn Gly Gly Gly Thr Val Gly Thr Val Ala Gly
340 345 350

Gly Gly Gly Asn Gly Gly Val Gly Gly Arg Gly Gly Asp Gly Val Phe
355 360 365

Ala Gly Ala Gly Gly Gln Gly Gly Leu Gly Gly Gln Gly Gly Asn Gly
370 375 380

Gly Gly Ser Thr Gly Gly Asn Gly Gly Leu Gly Gly Ala Gly Gly Gly
385 390 395 400

Gly Gly Asn Ala Pro Asp Gly Gly Phe Gly Gly Asn Gly Gly Lys Gly
405 410 415

Gly Gln Gly Gly Ile Gly Gly Gly Thr Gln Ser Ala Thr Gly Leu Gly
420 425 430

Gly Asp Gly Gly Asp Gly Gly Asp Gly Gly Asn Gly Gly Asn Ser Gly
435 440 445

Ala Lys Ala Gly Gly Ala Gly Gly Lys Gly Gln Ala Gly Gln Pro Asn
450 455 460

Ser Gly Thr Glu Pro Gly Phe Gly Gly Asp Gly Gly Leu Gly Gly Ala
465 470 475 480

Gly Ala Thr Pro

<210> 20
<211> 1079
<212> PRT
<213> M. tuberculosis

<220>
<221> misc_feature
<223> PE_PGRS

<220>
<221> misc_feature
<223> gi|2924449

<400> 20

Pro Gln Gly Ala Asp Gly Asn Ala Gly Asn Gly Gly Asp Gly Gly Val
1 5 10 15
Gly Gly Asn Gly Gly Asn Gly Ala Asp Asn Thr Thr Thr Ala Ala Ala
20 25 30
Gly Thr Thr Gly Gly Ala Gly Gly Ala Gly Gly Ala Gly Gly Thr Gly
35 40 45
Gly Thr Gly Gly Ala Ala Gly Thr Gly Thr Gly Gly Gln Gln Gly Asn
50 55 60
Gly Gly Asn Gly Gly Asn Gly Gly Thr Gly Gly Lys Gly Gly Thr Gly
65 70 75 80
Gly Asp Gly Ala Leu Ala Gly Ser Ser Gly Gly Ala Gly Gly Lys Gly
85 90 95
Gly Asn Gly Gly Asp Ala Gly Lys Ala Gly Thr Gly Ser Ala Pro Gly
100 105 110
Thr Ala Gly Thr Gly Gly Asp Gly Gly Lys Gly Gly Asn Gly Gly Ile
115 120 125
Gly Ala Ala Gly Thr Thr Gly Pro Val Gly Thr Gly Ala Ser Gly Gly
130 135 140
Thr Gly Gly Ser Gly Gly Ala Gly Gly Thr Gly Gly Asp Gly Gly Ala
145 150 155 160
Ala Asn Gly Gly Thr Ala Gly Ala Gly Gly Ala Gly Gly Asn Gly Gly
165 170 175
Lys Gly Gly Asp Gly Gly Ala Gly Val Thr Ser Ser Thr Ala Gly Asn
180 185 190

Ser Gly Gly Ala Gly Gly Ser Gly Gly Lys Gly Gly Asp Ala Gly Ala
195 200 205

Gly Gly Ala Gly Ala Thr Pro Gly Ala Asn Gly Ile Ala Gly Asn Gly
210 215 220

Gly Asp Gly Gly Asp Gly Ala Ala Gly Ala Val Gly Ile Ser Gly Ala
225 230 235 240

Thr Gly Ala Gly Asp Gly Gly His Gly Gly Thr Gly Ala Ala Gly Gly
245 250 255

Asn Gly Gly Thr Gly Gly Ala Gly Gly Ser Gly Ile Asp Gly Val Gly
260 265 270

Gly Gly Thr Gly Gly Thr Gly Gly Asn Gly Gly Asn Gly Ala Ile Gly
275 280 285

Gly Ala Gly Gly Asp Ala Gly Gly Ser Gly Asn Ser Gly Gly Asn Gly
290 295 300

Gly Ile Gly Gly Lys Gly Gly Asn Ala Gly Ala Gly Gly Ala Ala Gly
305 310 315 320

Ser Asn Gly Gly Thr Val Gly Ala Asn Gly Thr Gly Gly Asp Gly Gly
325 330 335

Asn Gly Gly Ala Ala Gly Ala Ala Thr Ala Gly Ser Asn Gly Gly Ala
340 345 350

Gly Thr Gly Ser Ala Gly Gly Asn Gly Gly Thr Gly Gly Arg Gly Gly
355 360 365

Ser Gly Gly Ala Gly Gly Asp Gly Ile Gly Gly Val Gly Gly Gly Lys
370 375 380

Gly Gly Asn Gly Ala Asp Gly Glu Val Gly Gly Ala Gly Gly Ala Gly
385 390 395 400

Gly Ser Gly Pro Asn Thr Ser Pro Gly Gly Asn Gly Gly Gln Gly Gly
405 410 415

Gln Gly Gly Ser Gly Gly Ala Gly Gly Ala Ala Gly Ala Gly Gly Ala
420 425 430

Gly Gly Gly Ala Asn Gly Thr Ala Gly Asn Gly Gly Gln Gly Gly Ala
435 440 445

Gly Gly Thr Gly Gly Ala Gly Ala Ala Ser Ser Ala Thr Asn Gly Gly
450 455 460

Ser Gly Gly Ala Gly Gly Thr Gly Gly Asp Gly Gly Ser Gly Gly Ala
465 470 475 480

Gly Gly Thr Gly Gly Ala Gly Gly Thr Gly Gly Ala Ala Gly Asp Gly

Gly Ala Gly Gly Lys Gly Gly Ser Gly Gly Val
1070 1075

<210> 21
<211> 354
<212> PRT
<213> M. tuberculosis

<220>
<221> misc_feature
<223> PPE

<220>
<221> misc_feature
<223> gi|1781260

<400> 21

Met Pro Gly Arg Phe Arg Asn Phe Gly Ser Gln Asn Leu Gly Ser Gly
1 5 10 15
Asn Ile Gly Ser Thr Asn Val Gly Ser Gly Asn Ile Gly Ser Thr Asn
20 25 30
Val Gly Ser Gly Asn Ile Gly Asp Thr Asn Phe Gly Asn Gly Asn Asn
35 40 45
Gly Asn Phe Asn Phe Gly Ser Gly Asn Thr Gly Ser Asn Asn Ile Gly
50 55 60
Phe Gly Asn Thr Gly Ser Gly Asn Phe Gly Phe Gly Asn Thr Gly Asn
65 70 75 80
Asn Asn Ile Gly Ile Gly Leu Thr Gly Asp Gly Gln Ile Gly Ile Gly
85 90 95
Gly Leu Asn Ser Gly Ser Gly Asn Ile Gly Phe Gly Asn Ser Gly Thr
100 105 110
Gly Asn Val Gly Leu Phe Asn Ser Gly Thr Gly Asn Val Gly Phe Gly
115 120 125
Asn Ser Gly Thr Ala Asn Thr Gly Phe Gly Asn Ala Gly Asn Val Asn
130 135 140
Thr Gly Phe Trp Asn Gly Gly Ser Thr Asn Thr Gly Leu Ala Asn Ala
145 150 155 160
Gly Ala Gly Asn Thr Gly Phe Phe Asp Ala Gly Asn Tyr Asn Phe Gly
165 170 175
Ser Leu Asn Ala Gly Asn Ile Asn Ser Ser Phe Gly Asn Ser Gly Asp
180 185 190

Gly Asn Ser Gly Phe Leu Asn Ala Gly Asp Val Asn Ser Gly Val Gly
195 200 205

Asn Ala Gly Asp Val Asn Thr Gly Leu Gly Asn Ser Gly Asn Ile Asn
210 215 220

Thr Gly Gly Phe Asn Pro Gly Thr Leu Asn Thr Gly Phe Phe Ser Ala
225 230 235 240

Met Thr Gln Ala Gly Pro Asn Ser Gly Phe Phe Asn Ala Gly Thr Gly
245 250 255

Asn Ser Gly Phe Gly His Asn Asp Pro Ala Gly Ser Gly Asn Ser Gly
260 265 270

Ile Gln Asn Ser Gly Phe Gly Asn Ser Gly Tyr Val Asn Thr Ser Thr
275 280 285

Thr Ser Met Phe Gly Gly Asn Ser Gly Val Leu Asn Thr Gly Tyr Gly
290 295 300

Asn Ser Gly Phe Tyr Asn Ala Ala Val Asn Asn Thr Gly Ile Phe Val
305 310 315 320

Thr Gly Val Met Ser Ser Gly Phe Phe Asn Phe Gly Thr Gly Asn Ser
325 330 335

Gly Leu Leu Val Ser Gly Asn Gly Leu Ser Gly Phe Phe Lys Asn Leu
340 345 350

Phe Gly

<210> 22

<211> 29

<212> PRT

<213> Pseudomonas aeruginosa

<220>

<221> misc_feature

<223> KdpF protein

<220>

<221> misc_feature

<223> gi|9947600

<400> 22

Met Thr Val Leu Asp Trp Leu Ser Leu Ala Leu Ala Thr Gly Leu Phe
1 5 10 15

Val Tyr Leu Leu Val Ala Leu Leu Arg Ala Asp Arg Ala

25

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<220>
<221> misc_feature
<223> alginate regulatory protein Algp
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<220>
<221> misc_feature
<223> gi|9951563
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<400> 23

Met 1	Ser	Ala	Asn	Lys 5	Lys	Pro	Val	Thr	Thr 10	Pro	Leu	His	Leu	15	
Gln	Leu	Ser	His 20	Ser	Leu	Val	Glu	His 25	Leu	Glu	Gly	Ala	Cys 30	Lys	Gln
Ala	Leu	Val	Asp 35	Ser	Glu	Lys	Leu 40	Leu	Ala	Lys	Leu	Glu 45	Lys	Gln	Arg
Gly 50	Lys	Ala	Gln	Glu	Lys	Leu 55	His	Lys	Ala	Arg	Thr 60	Lys	Leu	Gln	Asp
Ala 65	Ala	Lys	Ala	Gly 70	Lys	Thr	Lys	Ala	Gln 75	Ala	Lys	Ala	Arg	Glu	Thr 80
Ile	Ser	Asp	Leu 85	Glu	Glu	Ala	Leu	Asp 90	Thr	Leu	Lys	Ala	Arg	Gln 95	Ala
Asp	Thr	Arg	Thr 100	Tyr	Ile	Val	Gly	Leu 105	Lys	Arg	Asp	Val	Gln 110	Glu	Ser
Leu	Lys	Leu 115	Ala	Gln	Gly	Val	Gly 120	Lys	Val	Lys	Glu	Ala 125	Ala	Gly	Lys
Ala 130	Leu	Glu	Ser	Arg	Lys	Ala 135	Lys	Pro	Ala	Thr 140	Lys	Pro	Ala	Ala	Lys
Ala 145	Ala	Ala	Lys	Pro	Ala 150	Val	Lys	Thr	Val 155	Ala	Ala	Lys	Pro	Ala	Ala 160
Lys	Pro	Ala	Ala 165	Lys	Pro	Ala	Ala	Lys 170	Pro	Ala	Ala	Lys	Pro	Ala 175	Ala
Lys	Thr	Ala	Ala 180	Ala	Lys	Pro	Ala 185	Ala	Lys	Pro	Thr	Ala 190	Lys	Pro	Ala

Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Thr Ala Ala Ala Lys Pro
195 200 205

Ala Ala Lys Pro Ala Ala Lys Pro Val Ala Lys Pro Ala Ala Lys Pro
210 215 220

Ala Ala Lys Thr Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys
225 230 235 240

Pro Val Ala Lys Pro Thr Ala Lys Pro Ala Ala Lys Thr Ala Ala Ala
245 250 255

Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala
260 265 270

Lys Pro Val Ala Lys Ser Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala
275 280 285

Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Val
290 295 300

Ala Ala Lys Pro Ala Ala Thr Lys Pro Ala Thr Ala Pro Ala Ala Lys
305 310 315 320

Pro Ala Ala Thr Pro Ser Ala Pro Ala Ala Ala Ser Ser Ala Ala Ser
325 330 335

Ala Thr Pro Ala Ala Gly Ser Asn Gly Ala Ala Pro Thr Ser Ala Ser
340 345 350

<210> 24

<211> 309

<212> PRT

<213> Pseudomonas aeruginosa

<220>

<221> misc_feature

<223> polyhydroxyalkanoate synthesis protein PhaF

<220>

<221> misc_feature

<223> gi|9951352

<400> 24

Met Ala Gly Lys Lys Lys Ser Glu Lys Glu Ser Ser Trp Ile Gly Glu
1 5 10 15

Ile Glu Lys Tyr Ser Arg Gln Ile Trp Leu Ala Gly Leu Gly Ala Tyr
20 25 30

Ser Lys Val Ser Lys Asp Gly Ser Lys Leu Phe Glu Thr Leu Val Lys
35 40 45

Asp Gly Glu Lys Ala Glu Lys Glu Ala Lys Ser Asp Val Asp Ala Gln
50 55 60

Val Gly Ala Ala Lys Ala Ser Ala Arg Ser Ala Lys Ser Lys Val Asp
65 70 75 80

Glu Val Arg Asp Arg Ala Leu Gly Lys Trp Ser Glu Leu Glu Glu Ala
85 90 95

Phe Asp Lys Arg Leu Asn Ser Ala Ile Ser Arg Leu Gly Val Pro Ser
100 105 110

Arg Asn Glu Val Lys Glu Leu His Ser Lys Val Asp Thr Leu Thr Lys
115 120 125

Gln Ile Glu Lys Leu Thr Gly Val Ser Val Lys Pro Ala Ala Lys Ala
130 135 140

Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Thr
145 150 155 160

Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Ala Ala Lys
165 170 175

Pro Ala Ala Lys Pro Ala Ala Lys Lys Thr Ala Ala Lys Thr Ala Ala
180 185 190

Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Thr Ala Lys Ala Ala
195 200 205

Ala Lys Pro Ala Thr Lys Pro Ala Ala Lys Ala Ala Ala Lys Pro Ala
210 215 220

Ala Lys Pro Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro
225 230 235 240

Ala Ala Ala Thr Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro
245 250 255

Ala Ala Lys Lys Pro Ala Ala Lys Lys Pro Ala Ala Lys Pro Ala Ala
260 265 270

Ala Lys Pro Ala Ala Pro Ala Ala Ser Ser Ser Ala Pro Ala Ala Pro
275 280 285

Ala Ala Thr Pro Ala Ala Ser Ala Pro Ala Ala Asn Ala Pro Ala Thr
290 295 300

Pro Ser Ser Gln Gly
305

<210> 25
<211> 632
<212> PRT

<213> T. pallidum

<220>

<221> misc_feature

<223> dicarboxylate transporter (dctM)

<220>

<221> misc_feature

<223> gi|3323280

<400> 25

Met Lys Gly Thr Arg Gly Gln Leu Val Leu Arg Ser Ile Ala Leu Leu
1 5 10 15
Leu Ile Gly Thr Leu Met Leu Leu Pro Leu Val Leu Phe Leu Ile Glu
20 25 30
Arg Ile Phe Gly Phe Leu Thr Arg Gly Val Gly Ser Glu Val Phe Ser
35 40 45
Ala His Glu Asp Phe Ile Phe Leu Phe Phe Ser Ser Ser Asp Ala Ala
50 55 60
Val Ala Gln Leu Ala Phe Val Phe Ser Cys Val Ala Gly Ile Tyr Ala
65 70 75 80
Ala Arg Glu Arg Lys His Leu Ser Val Thr Leu Phe Ser Cys Asp Val
85 90 95
Asp Arg Pro Met His Arg Val Leu Ser Phe Leu Ser Ala Ile Cys Thr
100 105 110
Val Ala Val Leu Ser Ala Cys Phe Phe Ala Ser Gly Pro Asn Ile Val
115 120 125
Ala Val Phe Arg Lys Glu Glu Ala Val Trp Gly Val Pro Leu Arg Trp
130 135 140
Ile Phe Thr Ala Leu Pro Cys Met Tyr Gly Ala Leu Leu Phe His Tyr
145 150 155 160
Ala Arg Glu Val Lys Cys Arg Thr Cys Val Ile Val Gly Leu Leu Val
165 170 175
Gly Val Leu Ile Ser Thr Gly Ser Ile Ala Ser Val Leu Phe His Leu
180 185 190
Phe Asp Leu Thr Val Pro Leu Leu Asp Ser Val Phe His Gly Trp Val
195 200 205
Ala Val Gly Thr Arg Leu Phe Trp Pro Phe Val Leu Leu Leu Leu Leu
210 215 220

Leu Ala Ala Gln Gly Leu Pro Leu Phe Ile Thr Leu Leu Ala Ile Ala
225 230 235 240

Tyr Leu Ala Leu Ser Val Asp Gly Gly Tyr Val Asp Thr Leu Pro Leu
245 250 255

Glu Gly Tyr Lys Ile Leu Thr Asp Thr Gly Gly Ile Val Ala Val Pro
260 265 270

Leu Phe Ala Thr Ala Ser Leu Leu Leu Ala Arg Gly Ser Thr Gly Thr
275 280 285

Arg Leu Leu Arg Leu Val Lys Glu Ala Val Gly Trp Leu Arg Gly Gly
290 295 300

Ala Ala Val Ala Cys Val Ala Val Ala Ala Leu Phe Thr Ser Leu Thr
305 310 315 320

Gly Val Ser Gly Val Thr Ile Leu Ala Leu Gly Ser Leu Phe Lys Leu
325 330 335

Ile Leu Thr Gly Asn Lys Tyr Pro Glu His Asp Ala Glu Ala Leu Ile
340 345 350

Thr Ser Ser Gly Ala Ile Gly Leu Leu Phe Pro Pro Ser Ala Ala Ile
355 360 365

Ile Ile Phe Gly Ala Thr Asn Ile Leu Thr Val His Ile Val Asp Leu
370 375 380

Phe Lys Gly Ala Leu Leu Pro Gly Thr Leu Leu Val Leu Ser Ala Met
385 390 395 400

Cys Leu Gly Val Ala Lys Asp Arg Thr Gln Val Arg Pro Ser Phe Ser
405 410 415

Trp Gln Leu Leu Val His Ala Val Arg Gly Ser Val Phe Asp Leu Ala
420 425 430

Leu Pro Val Cys Ile Ser Leu Gly Tyr Phe Ser Gly Thr Leu Asn Leu
435 440 445

Leu Gln Cys Ala Ser Leu Thr Thr Leu Leu Ala Phe Val Leu Gly Thr
450 455 460

Trp Val Arg Arg Asp Phe Thr Val Lys Glu Ala Cys Ala Thr Ala Leu
465 470 475 480

Glu Ser Leu Pro Ile Val Gly Gly Ile Leu Ile Ile Val Ala Ala Ala
485 490 495

Lys Gly Leu Ser Phe Tyr Leu Val Asp Ala Asn Val Pro Asp Thr Leu
500 505 510

Ile Ala Phe Leu Gln His Ala Ile Ser Ser Lys Tyr Ala Phe Leu Leu
515 520 525

Leu Leu Asn Val Leu Leu Leu Gly Val Gly Cys Ile Met Asp Leu Tyr
530 535 540

Ser Ala Ile Leu Val Ile Ser Pro Leu Val Leu Pro Leu Ala Val His
545 550 555 560

Phe Gly Val His Pro Val His Ala Ser Val Val Phe Leu Met Asn Leu
565 570 575

Glu Leu Gly Ala Leu Thr Pro Pro Ile Gly Met Asn Leu Phe Ile Ala
580 585 590

Ser Phe Ala Phe Glu Lys Pro Ile Val Tyr Leu Thr Arg Ala Ile Ala
595 600 605

Pro Phe Leu Leu Ala Gln Leu Gly Val Leu Leu Leu Thr Thr Tyr Ile
610 615 620

Pro Trp Leu Ser Thr Ala Phe Leu
625 630

<210> 26

<211> 653

<212> PRT

<213> Vibrio cholerae

<220>

<221> misc_feature

<223> iron(III) ABC transporter, permease protein

<220>

<221> misc_feature

<223> gi|9654609

<400> 26

Met Ser Val Leu Arg Leu Thr Gly Leu Gly Ala Leu Thr Leu Leu Leu
1 5 10 15

Ala Leu Val Ser Leu Gln Trp Gly His Asn Leu Thr Leu Asn Glu Gln
20 25 30

Trp Gln Leu Val Leu Gly His Gln Ala Ala Gln Ser Phe Ala Gln Val
35 40 45

Asn Phe Ile Tyr Ala Gln Leu Pro Arg Ala Val Met Ala Ile Val Val
50 55 60

Gly Ala Val Leu Gly Leu Val Gly Ser Leu Met Gln Gln Leu Thr Gln
65 70 75 80

Asn Arg Leu Thr Ser Pro Leu Thr Leu Gly Thr Ser Ser Gly Ala Trp
85 90 95

Leu Gly Leu Ile Ile Val Asn Ile Trp Phe Ser Asp Trp Val Ala Asp
100 105 110

Tyr Ser Ala Leu Ala Ala Met Ala Gly Ala Leu Leu Ala Phe Ala Leu
115 120 125

Ile Ile Ser Ile Ala Gly Leu Arg Asn Leu Thr Gly Leu Pro Leu Val
130 135 140

Val Ser Gly Met Val Val Asn Ile Leu Leu Gly Ser Ile Ala Thr Ala
145 150 155 160

Leu Val Leu Leu Asn Glu Glu Phe Ala Gln Asn Val Phe Met Trp Gly
165 170 175

Ala Gly Asp Leu Ala Gln Asn Gly Trp Glu Trp Leu Thr Trp Leu Leu
180 185 190

Pro Arg Leu Ala Leu Val Phe Pro Leu Leu Leu Phe Ala Pro Arg Val
195 200 205

Leu Thr Leu Leu Arg Leu Gly His Glu Gly Ala Ala Ala Arg Gly Leu
210 215 220

Ala Val Leu Pro Ala Phe Leu Phe Leu Met Ala Gly Gly Ile Trp Leu
225 230 235 240

Val Ser Ala Ser Ile Thr Ala Val Gly Val Ile Gly Phe Ile Gly Leu
245 250 255

Leu Thr Pro Asn Ile Ala Arg Ser Leu Gly Ala Arg Thr Thr Lys Met
260 265 270

Glu Leu Tyr Ser Ser Ala Leu Leu Gly Ala Leu Leu Leu Leu Ala Thr
275 280 285

Asp Met Leu Ala Met Gly Leu Ser Val Trp Ala Glu Glu Val Val Pro
290 295 300

Ser Gly Ile Thr Ala Ala Val Ile Gly Ala Pro Ala Leu Ile Trp Phe
305 310 315 320

Ser Arg Arg Gln Leu Gln Ala Gln Asp Ser Leu Ser Ile Ser Leu Ser
325 330 335

Ser His Arg Arg Ser Pro Ser Arg Trp Ala Val Met Leu Ile Ala Ala
340 345 350

Ala Leu Leu Leu Ala Leu Ser Leu His Ile Gly Trp Gln Met Glu Ser
355 360 365

<211> 356
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> tolA protein

<220>
<221> misc_feature
<223> gi|9656364

<400> 27

Met Lys Glu Asn Lys Ser Arg Lys Ser Asn Asp Ala Lys Ser Ile Thr
1 5 10 15

Ile Ser Leu Ala Met His Gly Ala Leu Val Ala Ile Leu Leu Trp Gly
20 25 30

Ala Asp Phe Thr Met Ser Asp Pro Glu Pro Thr Gly Gln Met Ile Glu
35 40 45

Ala Val Val Ile Asp Pro Gln Leu Val Arg Gln Gln Ala Gln Gln Ile
50 55 60

Arg Ser Gln Arg Glu Glu Ala Ala Lys Lys Glu Gln Glu Arg Leu Asp
65 70 75 80

Lys Leu Arg Arg Glu Ser Glu Gln Leu Glu Lys Asn Arg Gln Ala Glu
85 90 95

Glu Glu Arg Ile Arg Gln Leu Lys Glu Gln Gln Ala Lys Glu Ala Lys
100 105 110

Ala Ala Arg Glu Ala Glu Lys Leu Arg Glu Gln Lys Glu Gln Glu Arg
115 120 125

Leu Ala Ala Glu Gln Lys Ala Arg Glu Glu Lys Glu Arg Ala Ala Lys
130 135 140

Ala Glu Ala Glu Arg Lys Val Lys Glu Glu Ala Ala Lys Lys Ala Glu
145 150 155 160

Gln Glu Arg Val Ala Lys Glu Ala Ala Ala Lys Ala Glu Gln Gln
165 170 175

Arg Ile Glu Arg Glu Lys Glu Ala Lys Leu Ala Glu Glu Lys Ala Lys
180 185 190

Arg Glu Lys Glu Val Ala Ala Lys Ala Glu Gln Glu Arg Leu Ala Lys
195 200 205

Glu Lys Ala Ala Lys Glu Ala Ala Asp Lys Ala Lys Lys Glu Lys Glu
 210 215 220

Arg Ala Ala Lys Ala Glu Ala Glu Arg Lys Ala Gln Glu Ala Ala Leu
 225 230 235 240

Asn Asp Ile Phe Gly Ser Leu Ser Glu Glu Ser Gln Gln Asn Asn Ala
 245 250 255

Ala Arg Gln Gln Phe Val Thr Ser Glu Val Gly Arg Tyr Gly Ala Ile
 260 265 270

Tyr Thr Gln Leu Ile Arg Gln Asn Leu Leu Val Glu Asp Ser Phe Arg
 275 280 285

Gly Lys Gln Cys Arg Val Asn Leu Lys Leu Ile Pro Thr Gly Thr Gly
 290 295 300

Ala Leu Leu Gly Ser Leu Thr Val Leu Asp Gly Asp Ser Arg Leu Cys
 305 310 315 320

Ala Ala Thr Lys Arg Ala Val Ala Gln Val Asn Ser Phe Pro Leu Pro
 325 330 335

Lys Asp Gln Pro Asp Val Val Glu Lys Leu Lys Asn Ile Asn Leu Thr
 340 345 350

Val Ala Pro Glu
 355

<210> 28
 <211> 73
 <212> PRT
 <213> L. major

<220>
 <221> misc_feature
 <223> hydrophilic surface protein 2

<220>
 <221> misc_feature
 <223> gi|1743289

<400> 28

Met Gly Ser Ser Cys Thr Lys Asp Ser Ala Lys Glu Pro Gln Lys Ser
 1 5 10 15

Ala Gly Asn Ile Asp Thr Thr Thr Arg Ser Asp Glu Lys Asp Gly Val
 20 25 30

Leu Val Gln Gln Asn Asp Gly Asp Val Gln Lys Lys Ser Glu Asp Gly
 35 40 45

Asp Asn Val Gly Glu Gly Gly Lys Gly Asn Glu Asp Gly Asn Asp Asp
50 55 60

Gln Pro Lys Glu His Ala Ala Gly Asn
65 70

<210> 29
<211> 177
<212> PRT
<213> L. major

<220>
<221> misc_feature
<223> hydrophilic surface protein

<220>
<221> misc_feature
<223> gi|468328

<400> 29

Met Gly Ser Ser Cys Thr Lys Asp Ser Ala Lys Glu Pro Gln Lys Ser
1 5 10 15

Ala Asp Lys Ile Lys Ser Thr Asn Glu Thr Asn Gln Gly Gly Asn Ala
20 25 30

Ser Gly Ser Arg Lys Ser Ala Gly Gly Arg Ala Asn Glu Tyr Asp Pro
35 40 45

Lys Asp Asp Gly Phe Thr Pro Asn Asn Glu Asp Arg Cys Pro Lys Glu
50 55 60

Asp Gly His Ala Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly
65 70 75 80

His Ala Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala
85 90 95

Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys
100 105 110

Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys Asn Asp
115 120 125

Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys Asn Asp Gly Asp
130 135 140

Val Gln Lys Lys Ser Glu Asp Gly Asp Asn Val Gly Glu Gly Gly Lys
145 150 155 160

Gly Asn Glu Asp Gly Asn Asp Asp Gln Pro Lys Glu His Ala Ala Gly

165

170

175

Asn

<210> 30
 <211> 106
 <212> PRT
 <213> Plasmodium falciparum

<220>
 <221> misc_feature
 <223> predicted integral membrane protein

<220>
 <221> misc_feature
 <223> gi|3845179

<400> 30

Met Tyr Ile Cys Phe Phe Phe Phe Phe Phe Phe Leu Val Ile Lys Leu
 1 5 10 15
 Gly Glu Asp Glu Asn Phe Gly Ser Ser Cys Phe Tyr Ser Leu Gly Asn
 20 25 30
 Thr Lys Ile Leu Thr Thr Val Tyr Gly Pro Asn Pro Asp Ser Lys Tyr
 35 40 45
 Ala Thr Tyr Ser Lys Gly Lys Val Phe Leu Asp Val Lys Ser Leu Asn
 50 55 60
 Ile Asn Thr Ile Gly Ala Ser Asp Arg Val Leu Tyr Ile Tyr Gly Phe
 65 70 75 80
 Phe Phe Phe Phe Phe Phe Phe Phe Phe Phe Ile Leu Asn Arg Ser Tyr
 85 90 95
 Phe Phe Leu Val Leu Phe Ile Ile Phe Ile
 100 105

<210> 31
 <211> 396
 <212> PRT
 <213> Plasmodium falciparum

<220>
 <221> misc_feature
 <223> Circumsporozoite (CS) protein

<220>
 <221> misc_feature

<223> gi|4493889

<400> 31

Met Arg Lys Leu Ala Ile Leu Ser Val Ser Ser Phe Leu Phe Val Glu
1 5 10 15
Ala Leu Phe Gln Glu Tyr Gln Cys Tyr Gly Ser Ser Ser Asn Thr Arg
20 25 30
Val Leu Asn Glu Leu Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn
35 40 45
Glu Leu Glu Met Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu
50 55 60
Lys Lys Asn Ser Arg Ser Leu Gly Glu Asn Asp Asp Gly Asn Asn Glu
65 70 75 80
Asp Asn Glu Lys Leu Arg Lys Pro Lys His Lys Lys Leu Lys Gln Pro
85 90 95
Ala Asp Gly Asn Pro Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn
100 105 110
Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn
115 120 125
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
130 135 140
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
145 150 155 160
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
165 170 175
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
180 185 190
Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
195 200 205
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
210 215 220
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
225 230 235 240
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
245 250 255
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
260 265 270

Lys Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp Pro
275 280 285

Asn Arg Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys Asn
290 295 300

Asn Asn Asn Glu Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu Asn
305 310 315 320

Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
325 330 335

Cys Gly Asn Gly Ile Gln Val Arg Ile Lys Pro Gly Ser Ala Asn Lys
340 345 350

Pro Lys Asp Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys Ile Cys
355 360 365

Lys Met Glu Lys Cys Ser Ser Val Phe Asn Val Val Asn Ser Ser Ile
370 375 380

Gly Leu Ile Met Val Leu Ser Phe Leu Phe Leu Asn
385 390 395

<210> 32
<211> 497
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0553

<220>
<221> misc_feature
<223> gi|2688482

<400> 32

Met Asn Lys Thr Lys Asn Arg Ser Leu Thr Tyr Phe Ile Ile Leu Ser
1 5 10 15

Cys Ile Ser Leu Phe Gly Ala Asn Asn Asn Thr Ile Ser Tyr Ser Ser
20 25 30

Ile Glu Ile Pro Leu Glu Asp Leu Ser Glu Glu Phe Lys Ser Ser Gly
35 40 45

Asn Lys Ser Asp Gln Ile Asn Thr Ser Lys His Leu Asn Lys Asn Ile
50 55 60

Val Ser Tyr Glu Asp Pro Lys Lys Gly Lys Asp Leu Lys Leu Pro Glu

65		70		75		80
Asn Ile Arg Asp	Lys Lys Leu Pro Gln Lys Arg Met Asp Glu Asn Asp					
	85		90		95	
Leu Lys Ser Val	Ile Glu Asn Tyr Glu Asn Lys Ile Lys Asn Ile Glu					
	100		105		110	
Lys Leu Leu Lys Thr Lys Asn Gln Lys Thr Ser Glu Asn Glu Asn Lys						
	115		120		125	
Lys Ile Glu Ser Ile Glu Lys Lys Ala Lys Lys Tyr Glu Ile Leu Thr						
	130		135		140	
Asn Lys Leu Lys Asn Glu Ile Val Glu Ile Lys Lys Leu Leu Asn Lys						
	145		150		155	
Lys Ile Lys Pro Lys Glu Asp Glu Asn Tyr Glu Lys Ile Asn Ile Glu						
	165		170		175	
Asn Ile Glu Glu Glu Thr Asp Asp Asp Phe Glu Asp Asn Tyr Glu Tyr						
	180		185		190	
Asn Asp Glu Ile Glu Xaa Thr Asn Glu Asp Asn Tyr Pro Ser Asn Glu						
	195		200		205	
Gly Ile Ile Asn Asn Leu Lys Glu Asn Leu Asn Glu Asn Glu Lys Tyr						
	210		215		220	
Tyr Ala Ile Asn Glu Lys Lys Ile Asp Glu Leu Glu Asp Arg Ile Asn						
	225		230		235	
Glu Asn Glu Asn Thr Ile Leu Asp Leu Gln Arg Glu Leu Arg Asn Phe						
	245		250		255	
Lys Lys Lys Asp Asn Ser Asp Lys Asn Leu Glu Glu Ile Glu Glu Asn						
	260		265		270	
Leu Ser Ser Ile Gly Arg Ile Ile Asn Asp Leu Lys Arg Lys Ile Ser						
	275		280		285	
Ala Asn Glu Ala Ile Asn Lys Glu Asn Gln Lys Lys Ile Arg Thr Asp						
	290		295		300	
Lys His Lys Leu Lys Glu Leu Glu Asp Lys Ile Lys Glu Asn Glu Glu						
	305		310		315	
Thr Ile Leu Lys Leu Gln Lys Glu Leu Asn Asn Phe Lys Lys Lys Glu						
	325		330		335	
Ile Tyr Gln Lys Pro Leu Asn Glu Glu Thr Phe Thr Pro Ser Ile Thr						
	340		345		350	
Ser Lys Asn Asp Asp Leu Glu Glu Asn Lys Lys Leu Lys Lys Glu Tyr						
	355		360		365	

Leu Lys Pro Ile Glu Lys Lys Glu Ser Arg Asp Leu Glu Glu Asn Thr
370 375 380

Lys Ser Thr Pro Lys Thr Thr Met Ile Lys Thr Ala Asp Phe Gln Ile
385 390 395 400

Tyr Pro Asp Ile Tyr Leu Asn Asn Tyr Lys Phe Lys Glu Lys Gly Asp
405 410 415

Gln Phe Ala Phe Lys Lys Glu Asn Thr Tyr Tyr Ile Glu Ile Asp Pro
420 425 430

Thr Asn Asn Leu Asn Glu Ala Leu Lys Asn His Glu Ile Ile Ser Lys
435 440 445

Tyr Lys Phe Glu Lys Tyr Phe Ile Asn Pro Ile Leu Lys Asn Lys Glu
450 455 460

Glu Phe Phe Arg Asn Leu Ile Glu Val Lys Asn Ile His Glu Leu Gly
465 470 475 480

Ile Met Tyr Lys Asn Leu Lys Pro Glu Phe Lys Gln Ile Lys Ile Ile
485 490 495

Lys

<210> 33

<211> 31

<212> PRT

<213> B. burgdorferi

<220>

<221> misc_feature

<223> predicted coding region BB0148

<220>

<221> misc_feature

<223> gi|2688046

<400> 33

Met Pro Val Lys Lys Asn Ser Thr Lys Ile Lys Lys Lys Glu Thr Gln
1 5 10 15

Ile Ala Ile Ala Leu Lys Ile Ile Ile Ile Ile Tyr Phe Phe Asp
20 25 30

<210> 34

<211> 30

<212> PRT

<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0150

<220>
<221> misc_feature
<223> gi|2688045

<400> 34

Met Phe Gly Cys Leu Arg Ile His Val Phe Lys Ile Tyr Phe Ile Phe
1 5 10 15
Leu Ile Ile His Tyr Ile Leu Phe Ser Ile Leu Leu Met Ile
20 25 30

<210> 35
<211> 344
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0212

<220>
<221> misc_feature
<223> gi|2688103

<400> 35

Met Met Lys Lys Ile Lys Ser Glu Ile Asn Leu Leu Lys Ile Glu Lys
1 5 10 15
Asp Lys Asn Leu Ile Glu Leu Gly Lys Ile Leu Lys Asn Asn Asn Ile
20 25 30
Val Glu Leu Lys Asn Leu Asn His Tyr Pro Asn Leu Lys Leu Val Glu
35 40 45
Lys Glu Leu Tyr Gln Met Lys Ser Asn Leu Ser Lys Ser Glu Glu Asn
50 55 60
Glu Asn Ile Leu Lys Asn Leu Asn Lys Lys Ile Tyr Ile Leu Lys Lys
65 70 75 80
Glu Tyr Lys Ser Thr Ser Lys Ser Tyr Lys Lys Asn Leu Lys Glu Ile
85 90 95
Ala Lys Thr Ile Ile Glu Ile Tyr Pro Gln Asn Leu Glu Leu Ile Ser

100	105	110
Lys Tyr Asn Met Asn Phe Ser	Lys Leu Lys Leu Glu	Lys Tyr Lys Lys
115	120	125
Ile Glu Leu Ala Ser Asp His	Lys Thr Lys Asn Tyr	Leu Gln Arg Ile
130	135	140
Met Leu Glu Val Ser Ser Thr	Ile Asn Asn Ile Ile	Asn Met Ile Asn
145	150	155
Val Tyr Lys Ile Ser Lys Glu	Phe Glu Lys Gln Val	Phe Thr Lys Tyr
165	170	175
Tyr Pro Ser Glu Asn Phe Glu	Ser Ile Met Asn Glu	Phe Ser Leu Asn
180	185	190
Lys Lys Leu Asn Asn Val Ile	Val Lys Glu Phe Lys	Ile Ile Asn Glu
195	200	205
Ile Lys Thr Asn Ile Lys Asn	Ile Lys Glu Glu Ile	Lys Glu Ile Ile
210	215	220
Ser Thr Ser Lys Lys Glu Lys	Ile Tyr Lys Lys Asn	Thr Ile Lys Asn
225	230	235
Glu Ile Asn Val Ile Thr Lys	Asn Lys Glu Asn Ile	Leu Lys Lys Ile
245	250	255
Ala Glu Glu Phe Ile Glu Ile	Thr Lys Lys Asp Lys	Met Thr Ala Lys
260	265	270
Thr Asn Ala Ile Ser Ser Ile	Ile Gln Lys Ile Glu	Lys Ile Asn Gln
275	280	285
Lys Ile Leu Asn Leu Asn Asn	Asp Leu Ile Lys Ile	Thr Lys Gln Glu
290	295	300
Glu Ile Lys Asn Ile Gln Gln	Lys Ile Gln Ala Leu	Thr Lys Glu Lys
305	310	315
Asn Lys Ile Asn Asn Lys Leu	Asp Ala Leu Thr Ser	Lys Ile Glu Val
325	330	335
Ile Gln Asn Glu Leu Asp Asn	Glu	
340		

<210> 36
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 <212> PRT
 <213> B. burgdorferi

 <220>
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 <223> predicted coding region BB0425

<220>
<221> misc_feature
<223> gi|2688333

<400> 36

Met Glu Asp Glu Arg Arg Glu Glu Leu Ser Lys Val Lys Ser Gln Lys
1 5 10 15

Asn Lys Gln Asn Leu Leu Ile Phe Leu Asn Lys Lys Ile Lys
20 25 30

<210> 37
<211> 32
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0433

<220>
<221> misc_feature
<223> gi|2688343

<400> 37

Met His Lys Phe Phe Lys Leu Ile Leu Lys Leu Phe Ser Phe Tyr Lys
1 5 10 15

Glu Ile Leu Gly Phe Lys Arg Arg Ala Lys Phe Ile Phe Cys Tyr Leu
20 25 30

<210> 38
<211> 38
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0520

<220>
<221> misc_feature
<223> gi|2688447

<400> 38

Met Ser Lys Ser Thr Lys Asn Thr Thr Lys Ser Lys Asn Asp Thr Lys
1 5 10 15

Asn Ile Leu Ile Asn Lys Lys Ile Lys Phe Phe Ile Leu Thr Lys Lys
20 25 30

Tyr Thr Arg Thr Phe Tyr
35

<210> 39

<211> 36

<212> PRT

<213> B. burgdorferi

<220>

<221> misc_feature

<223> predicted coding region BB0609

<220>

<221> misc_feature

<223> gi|2688540

<400> 39

Met Thr Met Ile Ile Ile Ile Phe Tyr Lys Tyr Leu Ile Pro Lys Ser
1 5 10 15

Ile Lys Asp Lys Asn Asn Lys Ser His Lys Thr Phe Ile Lys Lys Phe
20 25 30

Ile Ile Lys Tyr
35

<210> 40

<211> 31

<212> PRT

<213> B. burgdorferi

<220>

<221> misc_feature

<223> predicted coding region BB0822

<220>

<221> misc_feature

<223> gi|2688768

<400> 40

Met Pro Cys Gly Arg Lys Arg Lys Leu Lys Lys Ile Ser Thr His Lys
1 5 10 15

Arg Lys Lys Lys Arg Arg Lys Asn Arg His Lys Lys Lys Asn Lys
 20 25 30

<210> 41
 <211> 34
 <212> PRT
 <213> B. burgdorferi

<220>
 <221> misc_feature
 <223> predicted coding region BB0848

<220>
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 <223> gi|2688793

<400> 41

Met Tyr Phe Cys Ile Ile Asp Leu Glu Phe Val Gly Val Leu Pro Tyr
 1 5 10 15

Phe Phe Ile Tyr Lys Phe Gly Glu Phe Tyr Phe Ser Phe Phe Gly Lys
 20 25 30

Trp Arg

<210> 42
 <211> 51
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> highly acidic protein

<220>
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 <223> gi|6967728

<400> 42

Met Ala Tyr Glu Asp Glu Glu Asp Leu Asn Tyr Asp Asp Tyr Glu Asn
 1 5 10 15

Glu Asp Glu Glu Tyr Pro Gln Asn His His Lys Asn Tyr Asn Tyr Asp
 20 25 30

Asp Asp Asp Tyr Glu Tyr Asp Asp Asp Asn Asn Asp Asp Asp Phe Tyr
 35 40 45

Glu Met Asp
50

<210> 43
<211> 41
<212> PRT
<213> C. jejuni

<220>
<221> misc_feature
<223> hypothetical protein Cj0344

<220>
<221> misc_feature
<223> gi|6967819

<400> 43

Met Phe Gln Asn Ile Ile Lys Tyr Lys Asp Phe Ile Ile Phe Ile Leu
1 5 10 15
Asn Leu Lys Gln Asn Leu Tyr Leu Leu Ile Lys Ile Asn Leu Asp Phe
20 25 30
Lys Asn Phe His Lys Ser Leu Asn Phe
35 40

<210> 44
<211> 37
<212> PRT
<213> C. jejuni

<220>
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<223> hypothetical protein Cj0567

<220>
<221> misc_feature
<223> gi|6968034

<400> 44

Met Asp Lys Ile Gln Glu Asn Thr Lys Ile Glu Lys Ala Ile Leu Ala
1 5 10 15
Glu Lys Gln Gln Ile Phe Leu Ile Gln Asn Lys Leu Ser Glu Ile Glu
20 25 30
Lys Asn Ile Lys Glu
35

<210> 45
 <211> 74
 <212> PRT
 <213> C. jejuni

 <220>
 <221> misc_feature
 <223> small hydrophobic protein

<220>
 <221> misc_feature
 <223> gi|6968265

<400> 45

Met Leu Glu Phe Ile Phe Thr Leu Ile Leu Asp Phe Thr Phe Tyr Ser
 1 5 10 15

 Ile Lys Thr Leu Glu Lys Val Phe Leu Gly Arg Thr Ala Leu Val Ile
 20 25 30

 Leu Phe Val Val Phe Ile Ala Leu Phe Cys Val Lys Gly Leu Phe Leu
 35 40 45

 Tyr Ile Leu Leu Ala Leu Glu Leu Phe Leu Leu Leu Tyr Leu Phe Leu
 50 55 60

 Gly Ile Leu Phe Leu Arg Phe Tyr Lys Ser
 65 70

<210> 46
 <211> 46
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> very hypothetical protein Cj0974

<220>
 <221> misc_feature
 <223> gi|6968409

<400> 46

Met Leu Lys Met Ile Lys Ile Gln Lys Val Lys Ser Leu Leu Asp Leu
 1 5 10 15

 Val Lys Lys Leu Lys Asn Lys Gln Ser Leu Lys Ile Lys Asn Gln Thr
 20 25 30

Asn Thr Lys Glu Asn Leu Asn Lys Thr His Tyr Leu Thr Ile
 35 40 45

<210> 47
 <211> 78
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> very hypothetical protein

<220>
 <221> misc_feature
 <223> gi|6968423

<400> 47

Met Leu Lys Ile Pro Tyr Phe Ser Phe Leu Lys Leu Asp Phe Glu Ile
 1 5 10 15
 Tyr His Leu Asn Thr Ser Lys Asn Phe Tyr Gly Phe Phe Ile Leu Tyr
 20 25 30
 Phe Ser Phe Phe Ile Phe Lys Leu Ile Tyr Lys Phe Ser Lys Ser Asn
 35 40 45
 Lys Lys Ile Tyr Lys Lys Ile Ile Lys Leu Lys Lys Ile Ile Lys Asp
 50 55 60
 Asn Lys Tyr Leu Ile Phe Leu Cys Tyr Ile Leu Ile Asn Ile
 65 70 75

<210> 48
 <211> 30
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> hypothetical protein Cj0748

<220>
 <221> misc_feature
 <223> gi|6968200

<400> 48

Met Leu Glu Thr Leu Lys Lys Tyr Ala Glu Asn Gln Gly Ile Glu Asp
 1 5 10 15

Asn Tyr Pro Lys Lys Ile Tyr Asn Gln Lys Glu Lys Lys Pro
 20 25 30

<210> 49
 <211> 168
 <212> PRT
 <213> C. pneumoniae CWL029

<220>
 <221> misc_feature
 <223> CT670 hypothetical protein

<220>
 <221> misc_feature
 <223> gi|4377009

<400> 49

Met Ala Lys Tyr Pro Leu Glu Pro Val Leu Ala Ile Lys Lys Asp Arg
 1 5 10 15
 Val Asp Arg Ala Glu Lys Val Val Lys Glu Lys Arg Arg Leu Leu Glu
 20 25 30
 Ile Glu Gln Glu Lys Leu Arg Glu Lys Glu Ala Glu Arg Asp Lys Val
 35 40 45
 Lys Asn His Tyr Met Gln Lys Ile Gln Gln Leu Arg Asp Leu Leu Asp
 50 55 60
 Glu Gly Thr Thr Ser Asp Ala Val Leu Gln Ile Lys Ser Tyr Ile Lys
 65 70 75 80
 Val Val Ala Val Gln Leu Ser Glu Glu Glu Lys Val Asn Lys Gln
 85 90 95
 Lys Glu Val Val Leu Ala Ala Ser Lys Glu Leu Glu Lys Ala Glu Val
 100 105 110
 Asn Leu Ala Lys Arg Arg Lys Glu Glu Glu Lys Thr Arg Leu His Lys
 115 120 125
 Glu Glu Trp Met Lys Glu Ala Leu Lys Glu Glu Ala Arg Ala Glu Glu
 130 135 140
 Lys Glu Gln Asp Glu Met Gly Gln Leu Leu Phe Gln Leu Arg Gln Lys
 145 150 155 160
 Lys Lys Arg Glu Ser Gly Gly Ser
 165

<210> 50
 <211> 444

<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> CT579 hypothetical protein

<220>
<221> misc_feature
<223> gi|4377120

<400> 50

Met Thr Ser Gly Val Ser Gly Ser Ser Ser Gln Asp Pro Thr Leu Ala
1 5 10 15

Ala Gln Leu Ala Gln Ser Ser Gln Lys Ala Gly Asn Ala Gln Ser Gly
20 25 30

His Asp Thr Lys Asn Val Thr Lys Gln Gly Ala Gln Ala Glu Val Ala
35 40 45

Ala Gly Gly Phe Glu Asp Leu Ile Gln Asp Ala Ser Ala Gln Ser Thr
50 55 60

Gly Lys Lys Glu Ala Thr Ser Ser Thr Thr Lys Ser Ser Lys Gly Glu
65 70 75 80

Lys Ser Glu Lys Ser Gly Lys Ser Lys Ser Ser Thr Ser Val Ala Ser
85 90 95

Ala Ser Glu Thr Ala Thr Ala Gln Ala Val Gln Gly Pro Lys Gly Leu
100 105 110

Arg Gln Asn Asn Tyr Asp Ser Pro Ser Leu Pro Thr Pro Glu Ala Gln
115 120 125

Thr Ile Asn Gly Ile Val Leu Lys Lys Gly Met Gly Thr Leu Ala Leu
130 135 140

Leu Gly Leu Val Met Thr Leu Met Ala Asn Ala Ala Gly Glu Ser Trp
145 150 155 160

Lys Ala Ser Phe Gln Ser Gln Asn Gln Ala Ile Arg Ser Gln Val Glu
165 170 175

Ser Ala Pro Ala Ile Gly Glu Ala Ile Lys Arg Gln Ala Asn His Gln
180 185 190

Ala Ser Ala Thr Glu Ala Gln Ala Lys Gln Ser Leu Ile Ser Gly Ile
195 200 205

Val Asn Ile Val Gly Phe Thr Val Ser Val Gly Ala Gly Ile Phe Ser

gpcr 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

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210                215                220
Ala Ala Lys Gly Ala Thr Ser Ala Leu Lys Ser Ala Ser Phe Ala Lys
225                230                235                240

Glu Thr Gly Ala Ser Ala Ala Gly Gly Ala Ala Ser Lys Ala Leu Thr
                245                250                255

Ser Ala Ser Ser Ser Val Gln Gln Thr Met Ala Ser Thr Ala Lys Ala
                260                265                270

Ala Thr Thr Ala Ala Ser Ser Ala Gly Ser Ala Ala Thr Lys Ala Ala
                275                280                285

Ala Asn Leu Thr Asp Asp Met Ala Ala Ala Ala Ser Lys Met Ala Ser
                290                295                300

Asp Gly Ala Ser Lys Ala Ser Gly Gly Leu Phe Gly Glu Val Leu Asn
305                310                315                320

Lys Pro Asn Trp Ser Glu Lys Val Ser Arg Gly Met Asn Val Val Lys
                325                330                335

Thr Gln Gly Ala Arg Val Ala Ser Phe Ala Gly Asn Ala Leu Ser Ser
                340                345                350

Ser Met Gln Met Ser Gln Leu Met His Gly Leu Thr Ala Ala Val Glu
                355                360                365

Gly Leu Ser Ala Gly Gln Thr Gly Ile Glu Val Ala His His Gln Arg
                370                375                380

Leu Ala Gly Gln Ala Glu Ala Gln Ala Glu Val Leu Lys Gln Met Ser
385                390                395                400

Ser Val Tyr Gly Gln Gln Ala Gly Gln Ala Gly Gln Leu Gln Glu Gln
                405                410                415

Ala Met Gln Ser Phe Asn Thr Ala Leu Gln Thr Leu Gln Asn Ile Ala
                420                425                430

Asp Ser Gln Thr Gln Thr Thr Ser Ala Ile Phe Asn
                435                440
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<210> 51
<211> 493
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> CT578 hypothetical protein

<220>
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<221> misc_feature
<223> gi|4377121

<400> 51

Met Ser Ile Ser Ser Ser Ser Gly Pro Asp Asn Gln Lys Asn Ile Met
1 5 10 15
Ser Gln Val Leu Thr Ser Thr Pro Gln Gly Val Pro Gln Gln Asp Lys
20 25 30
Leu Ser Gly Asn Glu Thr Lys Gln Ile Gln Gln Thr Arg Gln Gly Lys
35 40 45
Asn Thr Glu Met Glu Ser Asp Ala Thr Ile Ala Gly Ala Ser Gly Lys
50 55 60
Asp Lys Thr Ser Ser Thr Thr Lys Thr Glu Thr Ala Pro Gln Gln Gly
65 70 75 80
Val Ala Ala Gly Lys Glu Ser Ser Glu Ser Gln Lys Ala Gly Ala Asp
85 90 95
Thr Gly Val Ser Gly Ala Ala Ala Thr Thr Ala Ser Asn Thr Ala Thr
100 105 110
Lys Ile Ala Met Gln Thr Ser Ile Glu Glu Ala Ser Lys Ser Met Glu
115 120 125
Ser Thr Leu Glu Ser Leu Gln Ser Leu Ser Ala Ala Gln Met Lys Glu
130 135 140
Val Glu Ala Val Val Val Ala Ala Leu Ser Gly Lys Ser Ser Gly Ser
145 150 155 160
Ala Lys Leu Glu Thr Pro Glu Leu Pro Lys Pro Gly Val Thr Pro Arg
165 170 175
Ser Glu Val Ile Glu Ile Gly Leu Ala Leu Ala Lys Ala Ile Gln Thr
180 185 190
Leu Gly Glu Ala Thr Lys Ser Ala Leu Ser Asn Tyr Ala Ser Thr Gln
195 200 205
Ala Gln Ala Asp Gln Thr Asn Lys Leu Gly Leu Glu Lys Gln Ala Ile
210 215 220
Lys Ile Asp Lys Glu Arg Glu Glu Tyr Gln Glu Met Lys Ala Ala Glu
225 230 235 240
Gln Lys Ser Lys Asp Leu Glu Gly Thr Met Asp Thr Val Asn Thr Val
245 250 255
Met Ile Ala Val Ser Val Ala Ile Thr Val Ile Ser Ile Val Ala Ala

<221> misc_feature

<223> gi|4377216

<400> 52

Met Arg Asn Met Glu Ala Lys Lys Ile Lys Glu Leu Ser Lys Glu Ala
1 5 10 15
Gln Leu Leu Lys Lys Leu Arg Glu Lys Ser Arg Val Leu Asp Glu Lys
20 25 30
Asn Lys Arg Lys Ala Trp Val Ala Lys Leu Val Ala Met Pro Glu Ser
35 40 45
Ile Arg Glu Ile Glu Lys Glu Glu Arg Val Glu Thr Pro Gln Leu Phe
50 55 60
Gln Ala Ile Ala Glu Lys Ile Leu Glu Glu Gly Val
65 70 75

<210> 53

<211> 755

<212> PRT

<213> C. pneumoniae CWL029

<220>

<221> misc_feature

<223> CT456 hypothetical protein

<220>

<221> misc_feature

<223> gi|4376866

<400> 53

Met Ala Ala Pro Ile Asn Gln Pro Ser Thr Thr Thr Gln Ile Thr Gln
1 5 10 15
Thr Gly Gln Thr Thr Thr Thr Thr Thr Val Gly Ser Leu Gly Glu His
20 25 30
Ser Val Thr Thr Thr Gly Ser Gly Ala Ala Ala Gln Thr Ser Gln Thr
35 40 45
Val Thr Leu Ile Ala Asp His Glu Met Gln Glu Ile Ala Ser Gln Asp
50 55 60
Gly Ser Ala Val Ser Phe Ser Ala Glu His Ser Phe Ser Thr Leu Pro
65 70 75 80
Pro Glu Thr Gly Ser Val Gly Ala Thr Ala Gln Ser Ala Gln Ser Ala
85 90 95

Gly Leu Phe Ser Leu Ser Gly Arg Thr Gln Arg Arg Asp Ser Glu Ile
100 105 110

Ser Ser Ser Ser Asp Gly Ser Ser Ile Ser Arg Thr Ser Ser Asn Ala
115 120 125

Ser Ser Gly Glu Thr Ser Arg Ala Glu Ser Ser Pro Asp Leu Gly Asp
130 135 140

Leu Asp Ser Leu Ser Gly Ser Glu Arg Ala Glu Gly Ala Glu Gly Pro
145 150 155 160

Glu Gly Pro Gly Gly Leu Pro Glu Ser Thr Ile Pro His Tyr Asp Pro
165 170 175

Thr Asp Lys Ala Ser Ile Leu Asn Phe Leu Lys Asn Pro Ala Val Gln
180 185 190

Gln Lys Met Gln Thr Lys Gly Gly His Phe Val Tyr Val Asp Glu Ala
195 200 205

Arg Ser Ser Phe Ile Phe Val Arg Asn Gly Asp Trp Ser Thr Ala Glu
210 215 220

Ser Ile Lys Val Ser Asn Ala Lys Thr Lys Glu Asn Ile Thr Lys Pro
225 230 235 240

Ala Asp Leu Glu Met Cys Ile Ala Lys Phe Cys Val Gly Tyr Glu Thr
245 250 255

Ile His Ser Asp Trp Thr Gly Arg Val Lys Pro Thr Met Glu Glu Arg
260 265 270

Ser Gly Ala Thr Gly Asn Tyr Asn His Leu Met Leu Ser Met Lys Phe
275 280 285

Lys Thr Ala Val Val Tyr Gly Pro Trp Asn Ala Lys Glu Ser Ser Ser
290 295 300

Gly Tyr Thr Pro Ser Ala Trp Arg Arg Gly Ala Lys Val Glu Thr Gly
305 310 315 320

Pro Ile Trp Asp Asp Val Gly Gly Leu Lys Gly Ile Asn Trp Lys Thr
325 330 335

Thr Pro Ala Pro Asp Phe Ser Phe Ile Asn Glu Thr Pro Gly Gly Gly
340 345 350

Ala His Ser Thr Ser His Thr Gly Pro Gly Thr Pro Val Gly Ala Thr
355 360 365

Val Val Pro Asn Val Asn Val Asn Leu Gly Gly Ile Lys Val Asp Leu
370 375 380

Gly Gly Ile Asn Leu Gly Gly Ile Thr Thr Asn Val Thr Thr Glu Glu
 385 390 395 400
 Gly Gly Gly Thr Asn Ile Thr Ser Thr Lys Ser Thr Ser Thr Asp Asp
 405 410 415
 Lys Val Ser Ile Thr Ser Thr Gly Ser Gln Ser Thr Ile Glu Glu Asp
 420 425 430
 Thr Ile Gln Phe Asp Asp Pro Gly Gln Gly Glu Asp Asp Asn Ala Ile
 435 440 445
 Pro Gly Thr Asn Thr Pro Pro Pro Pro Gly Pro Pro Pro Asn Leu Ser
 450 455 460
 Ser Ser Arg Leu Leu Thr Ile Ser Asn Ala Ser Leu Asn Gln Val Leu
 465 470 475 480
 Gln Asn Val Arg Gln His Leu Asn Thr Ala Tyr Asp Ser Asn Gly Asn
 485 490 495
 Ser Val Ser Asp Leu Asn Gln Asp Leu Gly Gln Val Val Lys Asn Ser
 500 505 510
 Glu Asn Gly Val Asn Phe Pro Thr Val Ile Leu Pro Lys Thr Thr Gly
 515 520 525
 Asp Thr Asp Pro Ser Gly Gln Ala Thr Gly Gly Val Thr Glu Gly Gly
 530 535 540
 Gly His Ile Arg Asn Ile Ile Gln Arg Asn Thr Gln Ser Thr Gly Gln
 545 550 555 560
 Ser Glu Gly Ala Thr Pro Thr Pro Gln Pro Thr Ile Ala Lys Ile Val
 565 570 575
 Thr Ser Leu Arg Lys Ala Asn Val Ser Ser Ser Ser Val Leu Pro Gln
 580 585 590
 Pro Gln Val Ala Thr Thr Ile Thr Pro Gln Ala Arg Thr Ala Ser Thr
 595 600 605
 Ser Thr Thr Ser Ile Gly Thr Gly Thr Glu Ser Thr Ser Thr Thr Ser
 610 615 620
 Thr Gly Thr Gly Thr Gly Ser Val Ser Thr Gln Ser Thr Gly Val Gly
 625 630 635 640
 Thr Pro Thr Thr Thr Thr Arg Ser Thr Gly Thr Ser Ala Thr Thr Thr
 645 650 655
 Thr Ser Ser Ala Ser Thr Gln Thr Pro Gln Ala Pro Leu Pro Ser Gly
 660 665 670
 Thr Arg His Val Ala Thr Ile Ser Leu Val Arg Asn Ala Ala Gly Arg

675 680 685
 Ser Ile Val Leu Gln Gln Gly Gly Arg Ser Gln Ser Phe Pro Ile Pro
 690 695 700
 Pro Ser Gly Thr Gly Thr Gln Asn Met Gly Ala Gln Leu Trp Ala Ala
 705 710 715 720
 Ala Ser Gln Val Ala Ser Thr Leu Gly Gln Val Val Asn Gln Ala Ala
 725 730 735
 Thr Ala Gly Ser Gln Pro Ser Ser Arg Arg Ser Ser Pro Thr Ser Pro
 740 745 750
 Arg Arg Lys
 755

<210> 54
 <211> 221
 <212> PRT
 <213> C. pneumoniae CWL029

<220>
 <221> misc_feature
 <223> SET Domain protein

<220>
 <221> misc_feature
 <223> gi|4377196

<400> 54

Met Ser Thr Val Thr Thr Glu Pro Cys Ser Ser Ile His Ile Ser Leu
 1 5 10 15
 Asn Asn Asp Trp Arg Asp Ser Gln Pro Tyr Ser Leu Asp Arg Ala Ser
 20 25 30
 Glu Leu Leu His Phe Arg Phe Leu Pro Ser Leu Val Phe Ser Asn Trp
 35 40 45
 Lys Val Glu Gln Gln Ile Glu Thr Leu Cys His Lys Ser Glu Lys Arg
 50 55 60
 Arg Leu Ile Ser Pro Leu Ala Lys Trp Leu Gly Lys Leu His Lys Gln
 65 70 75 80
 Asp Leu Leu Cys Pro Pro Ala Pro Pro Val Ser Val Cys Trp Ile Asn
 85 90 95
 Ala His Val Gly Tyr Gly Val Phe Ala Arg Asp Glu Ile Ala Pro Trp
 100 105 110

Thr Tyr Ile Gly Glu Tyr Thr Gly Ile Leu Arg His Arg Gln Ala Ile
 115 120 125
 Trp Met Asp Glu Asn Asp Tyr Cys Phe Arg Tyr Pro Met Pro Leu Phe
 130 135 140
 Thr Leu Arg Tyr Phe Thr Ile Asp Ser Gly Lys Gln Gly Asn Val Thr
 145 150 155 160
 Arg Phe Ile Asn His Ser Glu Gln Pro Asn Ala Glu Ala Ile Gly Val
 165 170 175
 Phe Ser Glu Gly Leu Phe His Val Ile Ile Arg Thr Val Ala Pro Ile
 180 185 190
 Tyr Ala Gly Gln Glu Ile Cys Tyr His Tyr Gly Pro Leu Tyr Trp Lys
 195 200 205
 His Arg Lys Lys Arg Glu Glu Phe Ile Pro Glu Glu Glu
 210 215 220

<210> 55
 <211> 98
 <212> PRT
 <213> C. pneumoniae CWL029

<220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|4376483

<400> 55

Met Ser Tyr Pro Asp Ile Ser Asn Val Gln Ala Ser Ser Ile Gln Ser
 1 5 10 15
 Ala Leu Leu His Lys Thr Ser Asp Gln Ile Gln Gln Lys Arg Cys Phe
 20 25 30
 Lys Gln Ser Thr Phe Val Ile Leu Ala Val Ser Leu Val Ile Ile Gly
 35 40 45
 Ser Leu Phe Leu Leu Ala Gly Val Ala Ile Leu Thr Val Phe Ser His
 50 55 60
 Gly Val Leu Ser Leu Val Phe Gly Val Leu Gly Ile Val Leu Gly Leu
 65 70 75 80
 Leu Leu Leu Ala Gly Gly Val Gly Leu Leu Val Glu Glu Ala Lys Ser
 85 90 95

Leu Leu

<210> 56
<211> 64
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> CT382.1 hypothetical protein

<220>
<221> misc_feature
<223> gi|4376770

<400> 56

Met Ile Lys Gln Ala Cys Lys Phe Tyr Leu Leu Gln Cys Leu Leu Cys
1 5 10 15

Ala Leu Tyr Trp Leu Leu Lys Tyr Cys Arg Lys Leu Leu Lys Gly Thr
20 25 30

Leu His His Ser Glu Glu Thr Leu Tyr Gln Ala Leu Leu Ser Ser Leu
35 40 45

Ile Asp Leu Leu Tyr Gln Leu Lys Gln Leu Pro Ala Pro Thr Asn Glu
50 55 60

<210> 57
<211> 50
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|4376779

<400> 57

Met Arg Thr Tyr Thr Arg Ser Pro Lys Gln Ser Gly Val Glu Arg Lys
1 5 10 15

Gln Glu Asp Ala Glu Thr Ser Phe Ile Glu Thr Pro Lys Gly Ile Leu
20 25 30

Lys Lys Pro Gly Asn Lys Asp Pro Lys Gly Lys His Val His Trp Lys
35 40 45

Asp Ser
50

<210> 58

<211> 775

<212> PRT

<213> C. pneumoniae CWL029

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|4376756

<400> 58

Met Ala Ser Gly Ile Gly Gly Ser Ser Gly Leu Gly Lys Ile Pro Pro
1 5 10 15

Lys Asp Asn Gly Asp Arg Ser Arg Ser Pro Ser Pro Lys Gly Glu Leu
20 25 30

Gly Ser His Glu Ile Ser Leu Pro Pro Gln Glu His Gly Glu Glu Gly
35 40 45

Ala Ser Gly Ser Ser His Ile His Ser Ser Ser Ser Phe Leu Pro Glu
50 55 60

Asp Gln Glu Ser Gln Ser Ser Ser Ser Ala Ala Ser Ser Pro Gly Phe
65 70 75 80

Phe Ser Arg Val Arg Ser Gly Val Asp Arg Ala Leu Lys Ser Phe Gly
85 90 95

Asn Phe Phe Ser Ala Glu Ser Thr Ser Gln Ala Arg Glu Thr Arg Gln
100 105 110

Ala Phe Val Arg Leu Ser Lys Thr Ile Thr Ala Asp Glu Arg Arg Asp
115 120 125

Val Asp Ser Ser Ser Ala Ala Ala Thr Glu Ala Arg Val Ala Glu Asp
130 135 140

Ala Ser Val Ser Gly Glu Asn Pro Ser Gln Gly Val Pro Glu Thr Ser
145 150 155 160

Ser Gly Pro Glu Pro Gln Arg Leu Phe Ser Leu Pro Ser Val Lys Lys

Lys His Gly Ala Lys Thr Lys Glu Ser Ser Glu Ser Ser Thr Pro Glu
 465 470 475 480
 Ile Ser Ile Ser Ala Pro Ile Val Arg Gly Trp Ser Gln Asp Ser Ser
 485 490 495
 Val Ser Phe Ile Val Met Glu Asp Asp His Ile Phe Tyr Asp Val Pro
 500 505 510
 Arg Arg Lys Asp Gly Ile Tyr Asp Val Pro Ser Ser Pro Arg Trp Ser
 515 520 525
 Pro Ala Arg Glu Leu Glu Glu Asp Val Phe Gly Asp Tyr Glu Val Pro
 530 535 540
 Ile Thr Ser Ala Glu Pro Ser Lys Asp Lys Asn Ile Tyr Met Thr Pro
 545 550 555 560
 Arg Leu Ala Thr Pro Ala Ile Tyr Asp Leu Pro Ser Arg Pro Gly Ser
 565 570 575
 Ser Gly Ser Ser Arg Ser Pro Ser Ser Asp Arg Val Arg Ser Ser Ser
 580 585 590
 Pro Asn Arg Arg Gly Val Pro Leu Pro Pro Val Pro Ser Pro Ala Met
 595 600 605
 Ser Glu Glu Gly Ser Ile Tyr Glu Asp Met Ser Gly Ala Ser Gly Ala
 610 615 620
 Gly Glu Ser Asp Tyr Glu Asp Met Ser Arg Ser Pro Ser Pro Arg Gly
 625 630 635 640
 Asp Leu Asp Glu Pro Ile Tyr Ala Asn Thr Pro Glu Asp Asn Pro Phe
 645 650 655
 Thr Gln Arg Asn Ile Asp Arg Ile Leu Gln Glu Arg Ser Gly Gly Ala
 660 665 670
 Ser Ala Ser Pro Val Glu Pro Ile Tyr Asp Glu Ile Pro Trp Ile His
 675 680 685
 Gly Arg Pro Pro Ala Thr Leu Pro Arg Pro Glu Asn Thr Leu Thr Asn
 690 695 700
 Val Ser Leu Arg Val Ser Pro Gly Phe Gly Pro Glu Val Arg Ala Ala
 705 710 715 720
 Leu Leu Ser Glu Ser Val Ser Ala Val Met Val Glu Ala Glu Ser Ile
 725 730 735
 Val Pro Pro Thr Glu Pro Gly Asp Gly Glu Ser Glu Tyr Leu Glu Pro
 740 745 750

Leu Gly Gly Leu Val Ala Thr Thr Lys Ile Leu Leu Gln Lys Gly Trp
755 760 765

Pro Arg Gly Glu Ser Asn Ala
770 775

<210> 59
<211> 104
<212> PRT
<213> C. trachomatis

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|3328515

<400> 59

Met Gly Asp Val Met Ile Gln Ser Val Lys Thr Glu Ser Gly Leu Val
1 5 10 15

Glu Gly His Arg Gly Ile Cys Asp Ser Leu Gly Arg Val Val Gly Ala
20 25 30

Leu Ala Lys Val Ala Lys Leu Val Val Ala Leu Ala Ala Leu Val Leu
35 40 45

Asn Gly Ala Leu Cys Val Leu Ser Leu Val Ala Leu Cys Val Gly Ala
50 55 60

Thr Pro Val Gly Pro Leu Ala Val Leu Val Ala Thr Thr Leu Ala Ser
65 70 75 80

Phe Leu Cys Ala Ala Cys Val Leu Phe Ile Ala Ala Lys Asp Arg Gly
85 90 95

Trp Ile Ala Ser Thr Asn Lys Cys
100

<210> 60
<211> 439
<212> PRT
<213> C. trachomatis

<220>
<221> misc_feature
<223> hypothetical protein

<220>

<221> misc_feature
<223> gi|3329021

<400> 60

Met Thr Thr Gly Val Arg Gly Asp Asn Ala Pro Asp Pro Ser Leu Leu
1 5 10 15
Ala Gln Leu Thr Gln Asn Ala Asn Ser Ala Ser Ala Ala Ser Thr Gly
20 25 30
Lys Asn Gly Gln Val Ala Gly Ala Lys Gln Glu Asn Val Asp Ala Ser
35 40 45
Phe Glu Asp Leu Leu Gln Asp Ala Gln Gly Thr Gly Gly Ser Lys Lys
50 55 60
Ala Thr Ala Asn Gln Thr Ser Lys Ser Gly Lys Ser Glu Lys Ala Gln
65 70 75 80
Ala Ser Ser Gly Thr Ser Thr Thr Thr Ser Val Ala Gln Ala Ser Gln
85 90 95
Thr Ala Thr Ala Gln Ala Val His Gly Ala Arg Asp Ser Gly Phe Asn
100 105 110
Ser Asp Gly Ser Ala Thr Leu Pro Ser Pro Thr Gly Thr Glu Val Asn
115 120 125
Gly Val Val Leu Arg Lys Gly Met Gly Thr Leu Ala Leu Met Gly Leu
130 135 140
Ile Met Thr Leu Leu Ala Gln Ala Ser Ala Lys Ser Trp Ser Ser Ser
145 150 155 160
Phe Gln Gln Gln Asn Gln Ala Ile Gln Asn Gln Val Ala Met Ala Pro
165 170 175
Glu Ile Gly Asn Ala Ile Arg Thr Gln Ala Asn His Gln Ala Gln Ala
180 185 190
Thr Glu Leu Gln Ala Gln Gln Ser Leu Ile Ser Gly Ile Thr Asn Ile
195 200 205
Val Gly Phe Ala Val Ser Val Gly Gly Gly Ile Leu Ser Ala Ser Lys
210 215 220
Ser Leu Gly Gly Leu Lys Ser Ala Ala Phe Thr Asn Glu Thr Ala Ser
225 230 235 240
Ala Thr Thr Ser Ala Thr Ser Ser Leu Ala Lys Thr Ala Thr Ser Ala
245 250 255
Leu Asp Asp Val Ala Gly Thr Ala Thr Ala Val Gly Ala Lys Ala Thr

260	265	270
Ser Gly Ala Ala Ser Ala Ala	Ser Ser Ala Ala Thr	Lys Leu Thr Gln
275	280	285
Asn Met Ala Glu Ser Ala Ser	Lys Thr Leu Ser Gln	Thr Ala Ser Lys
290	295	300
Ser Ala Gly Gly Leu Phe Gly	Gln Ala Leu Asn Thr	Pro Ser Trp Ser
305	310	315
Glu Lys Val Ser Arg Gly Met	Asn Val Val Lys Thr	Gln Gly Thr Arg
325	330	335
Ala Ala Lys Phe Ala Gly Arg	Ala Leu Ser Ser Ala	Met Asn Ile Ser
340	345	350
Gln Met Val His Gly Leu Thr	Ala Gly Ile Asp Gly	Ile Val Gly Gly
355	360	365
Val Ile Gly Ala Gln Val Ala	Gln Glu Gln Arg Met	Ala Gly Met Ala
370	375	380
Glu Ala Arg Ala Glu Glu Leu	Lys Ser Leu Asn Ser	Val Gln Ala Gln
385	390	395
Tyr Ala Ser Gln Ala Gln Gln	Leu Gln Glu Gln Ser	Gln Gln Ser Phe
405	410	415
Asn Ser Ala Leu Gln Thr Leu	Gln Ser Ile Ser Asp	Ser Ala Leu Gln
420	425	430
Thr Thr Ala Ser Met Phe Asn		
435		

<210> 61
 <211> 168
 <212> PRT
 <213> C. trachomatis

 <220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|3329121

<400> 61

Met Val Arg Tyr Pro Leu Glu Pro Val	Leu Ser Ile Lys Lys Asp Arg
1	15

Val Asp Arg Ala Glu Lys Val Val Lys Glu Lys Arg Arg Leu Leu Glu
 20 25 30
 Leu Glu Gln Glu Lys Leu Arg Glu Arg Glu Ser Glu Arg Asp Lys Val
 35 40 45
 Lys Asn His Tyr Met Gln Lys Ile Arg Gln Leu Arg Glu Gln Leu Asp
 50 55 60
 Asp Gly Thr Thr Ser Asp Ala Ile Leu Lys Met Lys Ala Tyr Ile Lys
 65 70 75 80
 Val Val Ala Ile Gln Leu Ser Glu Glu Glu Glu Lys Val Asn Lys Gln
 85 90 95
 Lys Glu Asn Val Leu Ala Ala Ser Lys Glu Leu Glu Arg Ala Glu Val
 100 105 110
 Glu Leu Thr Lys Arg Arg Lys Glu Glu Glu Lys Thr Arg Leu His Lys
 115 120 125
 Glu Glu Trp Met Lys Glu Ala Leu Lys Glu Glu Ala Arg Gln Glu Glu
 130 135 140
 Lys Glu Gln Asp Glu Met Gly Gln Leu Leu His Gln Leu His Lys Gln
 145 150 155 160
 Lys Gln Arg Glu Ser Gly Glu Asn
 165

<210> 62
 <211> 819
 <212> PRT
 <213> H. influenzae
 <220>
 <221> misc_feature
 <223> conserved hypothetical protein

<220>
 <221> misc_feature
 <223> gi|1574537

<400> 62

Met Ala Asp Val Leu Ser Arg Phe Asn Ser Gly Lys Leu Trp Asp Phe
 1 5 10 15
 Lys Gly Gly Ile His Pro Pro Glu Met Lys Ser Gln Ser Asn Ser Gln
 20 25 30
 Pro Leu Arg His Leu Pro Leu Gly Thr Asp Phe Tyr Ile Pro Leu Lys
 35 40 45

Phe Ala Gly Gly Pro Met Met Gly Leu Glu Leu Pro Asn Leu Asn Ala
 340 345 350

Pro Val Thr Lys Leu Val Asn Cys Leu Leu Ala Pro Asp Tyr Leu Glu
 355 360 365

Tyr Ala Glu Pro Glu Ala Glu Gln Ala Cys Ile Arg Cys Ser Ser Cys
 370 375 380

Ser Asp Ala Cys Pro Val Asn Leu Met Pro Gln Gln Leu Tyr Trp Phe
 385 390 395 400

Ala Arg Ser Glu Asp His Lys Lys Ser Glu Glu Tyr Ala Leu Lys Asp
 405 410 415

Cys Ile Glu Cys Gly Ile Cys Ala Tyr Val Cys Pro Ser His Ile Pro
 420 425 430

Leu Ile Gln Tyr Phe Arg Gln Glu Lys Ala Lys Ile Trp Gln Ile Lys
 435 440 445

Glu Lys Gln Lys Lys Ser Asp Glu Ala Lys Ile Arg Phe Glu Ala Lys
 450 455 460

Gln Ala Arg Met Glu Arg Glu Glu Gln Glu Arg Lys Ala Arg Ser Gln
 465 470 475 480

Arg Ala Ala Gln Ala Arg Arg Glu Glu Leu Ala Gln Thr Lys Gly Glu
 485 490 495

Asp Pro Val Lys Ala Ala Leu Glu Arg Leu Lys Ala Lys Lys Ala Asn
 500 505 510

Glu Thr Glu Ser Thr Gln Ile Lys Thr Leu Thr Ser Glu Lys Gly Glu
 515 520 525

Val Leu Pro Asp Asn Thr Asp Leu Met Ala Gln Arg Lys Ala Arg Arg
 530 535 540

Leu Ala Arg Gln Gln Ala Ala Ser Gln Val Glu Asn Gln Glu Gln Gln
 545 550 555 560

Thr Gln Pro Thr Asn Ala Lys Lys Ala Ala Val Ala Ala Ala Leu Ala
 565 570 575

Arg Ala Lys Ala Lys Lys Leu Ala Gln Ala Asn Ser Thr Ser Glu Ala
 580 585 590

Ile Ser Asn Ser Gln Thr Ala Glu Asn Gln Val Glu Lys Thr Lys Ser
 595 600 605

Ala Val Glu Lys Thr Gln Glu Asn Ser Thr Ala Leu Asp Pro Lys Lys
 610 615 620

Ala Ala Val Ala Ala Ala Ile Ala Arg Ala Lys Ala Lys Lys Leu Ala

625		630		635		640
Gln Thr Asn Ser Thr Ser Glu Ala Ile Ser Asn Ser Gln Thr Ala Glu						
	645			650		655
Asn Glu Val Glu Lys Thr Lys Ser Ala Val Glu Lys Thr Glu Glu Asn						
	660		665			670
Ser Thr Ala Leu Asp Ala Lys Lys Ala Ala Ile Ala Ala Ala Ile Ala						
	675		680			685
Arg Ala Lys Ala Lys Lys Leu Ala Gln Ala Asn Ser Ala Ser Glu Ala						
	690		695		700	
Ile Ser Asn Ser Gln Thr Ala Glu Asn Glu Val Glu Lys Thr Lys Ser						
	705		710		715	720
Ala Val Glu Lys Thr Gln Gln Asn Ser Thr Ala Leu Asp Pro Lys Lys						
	725		730			735
Ala Ala Val Ala Ala Ala Ile Ala Arg Ala Lys Ala Lys Lys Leu Ala						
	740		745			750
Gln Ala Asn Ser Thr Ser Glu Ala Ile Ser Asn Ser Gln Thr Ala Glu						
	755		760			765
Asn Glu Val Glu Lys Thr Lys Ser Ala Val Glu Lys Thr Gln Glu Asn						
	770		775			780
Ser Thr Ala Leu Asp Pro Lys Lys Ala Ala Val Ala Ala Ala Ile Ala						
	785		790		795	800
Arg Ala Lys Ala Lys Lys Leu Ala Lys Thr Gln Ala Thr Leu Glu Asn						
	805		810			815
Asn Gln Glu						

<210> 63
 <211> 52
 <212> PRT
 <213> H. influenzae

<220>
 <221> misc_feature
 <223> predicted coding region HI1562

<220>
 <221> misc_feature
 <223> gi|1574414

<400> 63

Met Leu Ser Lys Asp Pro Lys Val Leu Ile Lys Leu Gly Glu Leu Glu
1 5 10 15

Lys Asp Lys Ser Lys Ala Lys Lys Tyr Phe Gly Asp Ala Cys Asp Leu
20 25 30

Arg Ser Gln Glu Gly Cys Asp Lys Tyr Arg Glu Leu Asn Gln Lys Gln
35 40 45

Asp Thr Asn Lys
50

<210> 64

<211> 150

<212> PRT

<213> H. influenzae

<220>

<221> misc_feature

<223> conserved hypothetical protein

<220>

<221> misc_feature

<223> gi|1574625

<400> 64

Met Thr Leu Gln Leu Asn Thr Ile Ala Leu Leu Leu Val Ile Leu Leu
1 5 10 15

Ile Leu Gly Val Leu Ser Asn Asn Ser Thr Ile Thr Ile Ser Ala Ala
20 25 30

Val Leu Leu Ile Met Gln Gln Thr Phe Leu Ser Ser His Ile Pro Leu
35 40 45

Leu Glu Lys Tyr Gly Val Lys Ile Gly Ile Ile Ile Leu Thr Ile Gly
50 55 60

Val Leu Ser Pro Leu Val Ser Gly Lys Ile Gln Leu Pro Asp Leu Ser
65 70 75 80

Gly Phe Leu Ser Trp Lys Met Ala Leu Ser Ile Ser Val Gly Val Leu
85 90 95

Val Ala Trp Leu Ala Gly Lys Gly Val Pro Leu Met Gly Glu Gln Pro
100 105 110

Ile Leu Val Thr Gly Leu Leu Ile Gly Thr Ile Ile Gly Val Ala Phe
115 120 125

Leu Gly Gly Ile Pro Val Gly Pro Leu Ile Ala Ala Gly Ile Leu Ala
130 135 140

Leu Leu Leu Gly Lys Ile
145 150

<210> 65
<211> 129
<212> PRT
<213> H. influenzae

<220>
<221> misc_feature
<223> predicted coding region HI1339

<220>
<221> misc_feature
<223> gi|1574799

<400> 65

Met Glu Lys Ile Met Lys Lys Leu Thr Leu Ala Leu Val Leu Gly Ser
1 5 10 15
Ala Leu Val Val Thr Gly Cys Phe Asp Lys Gln Glu Ala Lys Gln Lys
20 25 30
Val Glu Asp Thr Lys Gln Thr Val Ala Ser Val Ala Ser Glu Thr Lys
35 40 45
Asp Ala Ala Ala Asn Thr Met Thr Glu Val Lys Glu Lys Ala Gln Gln
50 55 60
Leu Ser Thr Asp Val Lys Asn Lys Val Ala Glu Lys Val Glu Asp Ala
65 70 75 80
Lys Glu Val Ile Lys Ser Ala Thr Glu Ala Ala Ser Glu Lys Val Gly
85 90 95
Glu Met Lys Glu Ala Ala Ser Glu Lys Ala Ser Glu Met Lys Glu Ala
100 105 110
Val Ser Glu Lys Ala Thr Gln Ala Val Asp Ala Val Lys Glu Ala Thr
115 120 125

Lys

<210> 66
<211> 136
<212> PRT
<213> H. influenzae

<220>
<221> misc_feature

<223> predicted coding region HI1462.1

<220>

<221> misc_feature

<223> gi|3212225

<400> 66

Met Xaa Gln Ser Asn Tyr Ser Met Glu Lys Ile Met Lys Lys Leu Thr
1 5 10 15

Leu Ala Leu Val Leu Gly Ser Ala Leu Val Val Thr Gly Cys Phe Asp
20 25 30

Lys Gln Glu Ala Lys Gln Lys Val Glu Asp Thr Lys Gln Thr Val Ala
35 40 45

Ser Val Ala Ser Glu Thr Lys Asp Ala Ala Ala Asn Thr Met Thr Glu
50 55 60

Val Lys Glu Lys Ala Gln Gln Leu Ser Thr Asp Val Lys Asn Lys Val
65 70 75 80

Ala Glu Lys Val Glu Asp Ala Lys Glu Val Ile Lys Ser Ala Thr Glu
85 90 95

Ala Ala Ser Glu Lys Val Gly Glu Met Lys Glu Ala Ala Ser Glu Lys
100 105 110

Ala Ser Glu Met Lys Glu Ala Val Ser Glu Lys Ala Thr Gln Ala Val
115 120 125

Asp Ala Val Lys Glu Ala Thr Lys
130 135

<210> 67

<211> 113

<212> PRT

<213> H. influenzae

<220>

<221> misc_feature

<223> conserved hypothetical protein

<220>

<221> misc_feature

<223> gi|1574607

<400> 67

Met Phe Thr Asp Trp Lys Glu His Thr Ser His Val Lys Lys Ser Phe

```

1             5             10             15
Gly Glu Leu Gly Lys Gln Tyr Pro Lys Met Leu Gln Ala Tyr Gln Ala
    20             25             30
Leu Gly Ala Ala Ala Glu Gly Asn Val Leu Asp Ala Lys Thr Arg
    35             40             45
Glu Leu Ile Ala Leu Ala Val Ala Val Thr Thr Arg Cys Glu Ser Cys
    50             55             60
Ile Ser Ala His Ala Glu Glu Ala Val Lys Ala Gly Ala Ser Glu Ala
    65             70             75             80
Glu Val Ala Ala Ala Leu Ala Thr Ala Ile Ala Leu Asn Ala Gly Ala
    85             90             95
Ala Tyr Thr Tyr Ser Leu Arg Ala Leu Glu Ala Tyr Ser Val Gln Lys
    100            105            110

```

Ala

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<210> 68
<211> 33
<212> PRT
<213> H. pylori

<220>
<221> misc_feature
<223> predicted coding region HP0131

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<220>
<221> misc_feature
<223> gi|2313229

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<400> 68

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Met Pro Tyr Pro Phe Met Ser Phe Lys Gln Thr Phe Tyr Tyr Lys Met
1             5             10             15
Glu Ser Lys Thr Met Lys Glu Arg Phe Lys Thr Leu Phe Phe Lys Ile
    20             25             30

```

Phe

```

<210> 69
<211> 12
<212> PRT
<213> H. pylori

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<220>

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<221> misc_feature
<223> predicted coding region HP0429

<220>
<221> misc_feature
<223> gi|2313552

<400> 69

Met Asn Glu Asn Gly Lys Lys Glu Ala Leu Gln Leu
1 5 10

<210> 70
<211> 26
<212> PRT
<213> H. pylori

<220>
<221> misc_feature
<223> predicted coding region HP0560

<220>
<221> misc_feature
<223> gi|2313684

<400> 70

Met Gly Ile Ile Tyr Leu Ile Leu Phe Leu Ile Val Ile Tyr Leu Leu
1 5 10 15

Tyr Arg Ile Leu Asp Val Leu Glu Gln Lys
20 25

<210> 71
<211> 48
<212> PRT
<213> H. pylori

<220>
<221> misc_feature
<223> predicted coding region HP0756

<220>
<221> misc_feature
<223> gi|2313894

<400> 71

Met Lys Asp Tyr Glu Asp Glu Leu Glu Asp Phe Glu Glu Glu Glu Leu

1 5 10 15
 Glu Gly Phe Glu Glu Glu Asp Glu Glu Tyr Gly Asp Tyr Lys Asn Val
 20 25 30

Tyr Asp Asp Asp Asp Tyr Glu Asp Tyr Asn Ser Asp Tyr Glu Glu Glu
 35 40 45

<210> 72
 <211> 23
 <212> PRT
 <213> H. pylori

<220>
 <221> misc_feature
 <223> predicted coding region HP1500

<220>
 <221> misc_feature
 <223> gi|2314686

<400> 72

Met Cys Ser Asn Ser Ser Ser Leu Lys Ile Tyr Ser Leu Glu Ser Asn
 1 5 10 15

Phe Ser Phe Asn Ser Leu Phe
 20

<210> 73
 <211> 1805
 <212> PRT
 <213> M. genitalium

<220>
 <221> misc_feature
 <223> gi|1045905

<400> 73

Met Lys Pro Phe Asp Lys Lys Pro Ser Leu Gln Pro Ile Tyr Asp Ile
 1 5 10 15

Gly Phe Asp Asp Gly Tyr Leu Gln Ser Glu Tyr Glu Lys Asn Arg Ser
 20 25 30

Lys Thr Asp Val Asp Lys Ile Glu Asn Gln Leu Leu Lys Glu Ile Lys
 35 40 45

Ser Leu Glu Asp Glu Leu Lys Asn Leu Lys Gly Leu Lys Asn Gln Ala
 50 55 60

Glu Asp Asn Pro Glu Leu Asp Lys Lys Ile Asn His Leu Glu Val Asp
 65 70 75 80
 Leu Asn Arg Leu Val Asn Glu Tyr Lys Asn Phe Gln Phe Gln Lys Asn
 85 90 95
 His Met Val Asp Lys Val Ser Glu Leu Asp Asn Leu Thr Arg Phe Tyr
 100 105 110
 Lys Asn Glu Leu Thr Arg Leu Gln Gln Glu Asn Ala Asp Phe Leu Asn
 115 120 125
 Ser Lys Tyr Ala Asn Leu Ala Asn Phe Gln Ala Asn Tyr His Asn Lys
 130 135 140
 Leu Asn Asp Phe His Arg Leu Ile Glu Asn Gln Asn Gln Thr Ile Asn
 145 150 155 160
 Arg Leu Asn Gln Lys Ile Asn Gly Asn Gln Asn Leu Ile Asp Asn Asn
 165 170 175
 Val Ala Leu Leu Gln Asn Pro Asn Ile Thr Val Glu Lys Lys Asn Tyr
 180 185 190
 Leu Leu Asn Val Ile Asp Gln Leu Tyr Asn Glu Leu Asp Gln Leu Glu
 195 200 205
 Asn Gln Lys Arg Leu Leu Ser Ile Glu Tyr Glu Asn Thr Tyr Arg Glu
 210 215 220
 Leu Val Ser Ala Asp Asn Glu Leu Gln Asn Val Tyr Glu Asn Ile Asp
 225 230 235 240
 Gln Asn Gln Ile Gln Phe Lys His Gln Tyr Gln Thr Tyr Arg Asp Glu
 245 250 255
 Leu Ser Gln Leu Glu Arg Lys Ile Gln Leu Thr Lys Gln Glu Leu Val
 260 265 270
 Asp Lys Glu Ser Ala Leu Arg Val Lys Ile Asp Asp Ala Asp Phe Tyr
 275 280 285
 Ile Asn Ala Arg Leu Ala Glu Leu Asp Asp Val Ala Lys Gln Leu Ser
 290 295 300
 Phe Gln Asp Gly Ile Thr Lys Gln Asn Ala Gln His Val Glu Asp Lys
 305 310 315 320
 Leu Val Ala Leu Asn Lys Glu Lys Asp Arg Leu Asn Thr Gln Lys Glu
 325 330 335
 Ala Phe Phe Asn Leu Arg Gln Ser Ala Leu Ile Asp Ile Asn Lys Leu
 340 345 350
 Gln Gln Glu Asn Glu Leu Phe Ala Lys His Leu Glu His Gln Gln Asn

Val	Glu	Lys	Gln	Lys	Glu	Ile	Leu	Gly	Lys	Lys	Leu	Gln	Asp	Phe	Ser		
			660					665					670				
Gln	Thr	Ser	Leu	Asn	Ala	Ser	Lys	Asn	Leu	Ala	Glu	Arg	Glu	Met	Ala		
		675					680					685					
Ile	Lys	Phe	Lys	Glu	Lys	Glu	Ile	Glu	Ala	Thr	Glu	Lys	Gln	Leu	Leu		
	690					695					700						
Asn	Asp	Val	Asn	Asn	Ala	Glu	Val	Ile	Gln	Ala	Asp	Leu	Ala	Gln	Leu		
705					710				715						720		
Asn	Gln	Ser	Leu	Asn	Gln	Glu	Arg	Ser	Glu	Leu	Gln	Asn	Ala	Lys	Gln		
			725					730						735			
Arg	Ile	Ala	Asp	Phe	His	Asn	Asp	Ser	Leu	Lys	Lys	Leu	Asn	Glu	Tyr		
		740						745					750				
Glu	Leu	Ser	Leu	Gln	Lys	Arg	Leu	Gln	Glu	Leu	Gln	Thr	Leu	Glu	Ala		
		755					760					765					
Asn	Gln	Lys	Gln	His	Ser	Tyr	Gln	Asn	Gln	Ala	Tyr	Phe	Glu	Gly	Glu		
	770					775					780						
Leu	Asp	Lys	Leu	Asn	Arg	Glu	Lys	Gln	Ala	Phe	Leu	Asn	Leu	Arg	Lys		
785					790					795					800		
Lys	Gln	Thr	Met	Glu	Val	Asp	Ala	Ile	Lys	Gln	Arg	Leu	Ser	Asp	Lys		
			805						810					815			
His	Gln	Ala	Leu	Asn	Met	Gln	Gln	Ala	Glu	Leu	Asp	Arg	Lys	Thr	His		
			820					825					830				
Glu	Leu	Asn	Asn	Ala	Phe	Leu	Asn	His	Asp	Ala	Asp	Gln	Lys	Ser	Leu		
		835					840					845					
Gln	Asp	Gln	Leu	Ala	Thr	Val	Lys	Glu	Thr	Gln	Lys	Leu	Ile	Asp	Leu		
	850					855					860						
Glu	Arg	Ser	Ala	Leu	Leu	Glu	Lys	Gln	Arg	Glu	Phe	Ala	Glu	Asn	Val		
865				870						875					880		
Ala	Gly	Phe	Lys	Arg	His	Trp	Ser	Asn	Lys	Thr	Ser	Gln	Leu	Gln	Lys		
			885						890					895			
Ile	Tyr	Glu	Leu	Thr	Lys	Lys	Gln	Glu	Ser	Glu	Gln	Thr	Gln	Lys	Glu		
		900						905					910				
Thr	Glu	Leu	Lys	Ile	Ala	Phe	Ser	Asp	Leu	Gln	Lys	Asp	Tyr	Gln	Val		
		915					920					925					
Phe	Glu	Leu	Gln	Lys	Asp	Gln	Glu	Phe	Arg	Gln	Ile	Glu	Ala	Lys	Gln		
	930					935					940						

Arg Glu Leu Asp Lys Leu Ala Glu Lys Asn Asn Gln Val Lys Leu Glu
 945 950 955 960
 Leu Asp Asn Arg Phe Gln Ala Leu Gln Asn Gln Lys Gln Asp Thr Val
 965 970 975
 Gln Ala Gln Leu Glu Leu Glu Arg Glu Gln His Gln Leu Asn Leu Glu
 980 985 990
 Gln Thr Ala Phe Asn Gln Ala Asn Glu Ser Leu Leu Lys Gln Arg Glu
 995 1000 1005
 Gln Leu Thr Lys Lys Ile Gln Ala Phe His Tyr Glu Leu Lys Lys
 1010 1015 1020
 Arg Asn Gln Phe Leu Ala Leu Lys Gly Lys Arg Leu Phe Ala Lys
 1025 1030 1035
 Glu Gln Asp Gln Gln Arg Lys Asp Gln Glu Ile Asn Trp Arg Phe
 1040 1045 1050
 Lys Gln Phe Glu Lys Glu Tyr Thr Asp Phe Asp Glu Ala Lys Lys
 1055 1060 1065
 Arg Glu Leu Glu Glu Leu Glu Lys Ile Arg Arg Ser Leu Ser Gln
 1070 1075 1080
 Ser Asn Val Glu Leu Glu Arg Lys Arg Glu Lys Leu Ala Thr Asp
 1085 1090 1095
 Phe Thr Asn Leu Asn Lys Val Gln His Asn Thr Gln Ile Asn Arg
 1100 1105 1110
 Asp Gln Leu Asn Ser Gln Ile Arg Gln Phe Leu Leu Glu Arg Lys
 1115 1120 1125
 Asn Phe Gln Arg Phe Ser Asn Glu Ala Asn Ala Lys Lys Ala Phe
 1130 1135 1140
 Leu Ile Lys Arg Leu Arg Ser Phe Ala Ser Asn Leu Lys Leu Gln
 1145 1150 1155
 Lys Glu Ala Leu Ala Ile Gln Lys Leu Glu Phe Asp Lys Arg Asp
 1160 1165 1170
 Glu Gln Gln Lys Lys Glu Leu Gln Gln Ala Thr Leu Gln Leu Glu
 1175 1180 1185
 Gln Phe Lys Phe Glu Lys Gln Asn Phe Asp Ile Glu Lys Gln Arg
 1190 1195 1200
 Gln Leu Val Ala Ile Lys Thr Gln Cys Glu Lys Leu Ser Asp Glu
 1205 1210 1215
 Lys Lys Ala Leu Asn Gln Lys Leu Val Glu Leu Lys Asn Leu Ser

1220 1225 1230
 Gln Thr Tyr Leu Ala Asn Lys Asn Lys Ala Glu Tyr Ser Gln Gln
 1235 1240 1245
 Gln Leu Gln Gln Lys Tyr Thr Asn Leu Leu Asp Leu Lys Glu Asn
 1250 1255 1260
 Leu Glu Arg Thr Lys Asp Gln Leu Asp Lys Lys His Arg Ser Ile
 1265 1270 1275
 Phe Ala Arg Leu Thr Lys Phe Ala Asn Asp Leu Arg Phe Glu Lys
 1280 1285 1290
 Lys Gln Leu Leu Lys Ala Gln Arg Ile Val Asp Asp Lys Asn Arg
 1295 1300 1305
 Leu Leu Lys Glu Asn Glu Arg Asn Leu His Phe Leu Ser Asn Glu
 1310 1315 1320
 Thr Glu Arg Lys Arg Ala Val Leu Glu Asp Gln Ile Ser Tyr Phe
 1325 1330 1335
 Glu Lys Gln Arg Lys Gln Ala Thr Asp Ala Ile Leu Ala Ser His
 1340 1345 1350
 Lys Glu Val Lys Lys Lys Glu Gly Glu Leu Gln Lys Leu Leu Val
 1355 1360 1365
 Glu Leu Glu Thr Arg Lys Thr Lys Leu Asn Asn Asp Phe Ala Lys
 1370 1375 1380
 Phe Ser Arg Gln Arg Glu Glu Phe Glu Asn Gln Arg Leu Lys Leu
 1385 1390 1395
 Leu Glu Leu Gln Lys Thr Leu Gln Thr Gln Thr Asn Ser Asn Asn
 1400 1405 1410
 Phe Lys Thr Lys Ala Ile Gln Glu Ile Glu Asn Ser Tyr Lys Arg
 1415 1420 1425
 Gly Met Glu Glu Leu Asn Phe Gln Lys Lys Glu Phe Asp Lys Asn
 1430 1435 1440
 Lys Ser Arg Leu Tyr Glu Tyr Phe Arg Lys Met Arg Asp Glu Ile
 1445 1450 1455
 Glu Arg Lys Glu Ser Gln Val Lys Leu Val Leu Lys Glu Thr Gln
 1460 1465 1470
 Arg Lys Ala Asn Leu Leu Glu Ala Gln Ala Asn Lys Leu Asn Ile
 1475 1480 1485
 Glu Lys Asn Thr Ile Asp Phe Lys Glu Lys Glu Leu Lys Ala Phe
 1490 1495 1500

Ala Ala Pro Asn Ile Thr Lys Gln Gln Gln Ile Ala Gln Leu Asn
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Ala Glu Ile Asn Asn Ile Lys Arg Leu Ile Ala Gln Lys Ala Ala
1790 1795 1800

Ser Lys
1805

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<213> M. genitalium

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<223> hypothetical protein

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<223> gi|1045811

<400> 74

Met Gln Tyr Ser Ala Leu Ile Pro Leu Phe Ile Leu Leu Ile Ser Leu
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Val Leu Phe Cys Phe Ser Phe Arg Lys Asn Gln Ser Glu Asn Gln Ile
20 25 30

Val Lys Ile Leu Phe Phe Ala Tyr Cys Ile Asp Phe Leu Ala Leu Ile
35 40 45

Leu Ala Val Met Leu Leu Thr Phe Leu Ser His Gly Leu Leu Ser Leu
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Ala Ile Leu Ile Pro Val Leu Val Phe Gln
65 70

<210> 75
<211> 1033
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> MG328 homolog

<220>
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<223> gi|1674046

<400> 75

Met Glu Phe Leu Glu Gln Glu Gly Gln Glu Val Leu Thr Lys Glu Ile
1 5 10 15

Lys Ala Gly Phe Cys Glu Ile Thr Pro Ser Ser Ile Thr Glu Gln Thr
20 25 30

Thr Lys Pro Gln Leu Asp Glu Thr Gln Leu Val Asp Glu Tyr Val His
35 40 45

Thr Lys Glu Leu Glu Thr Thr Pro Ile Pro Ile Ser Phe Ala Thr Lys
50 55 60

Glu Val Leu Phe Glu Glu Val Phe Asn Thr Pro Ser Thr Gln Gln Val
65 70 75 80

Asp Glu Ser Val Leu Val Asn Glu Tyr Ile Glu Leu Thr Gln Gln Ile
85 90 95

Lys Asn Ala Ser Glu Gln Val Ser Ser Asn His Thr His Lys Phe Ser
100 105 110

Val Ala Thr Glu Pro Ala Ala Thr Lys Ala Val Ser Glu Thr Met Leu
115 120 125

Leu Asp Asp Tyr Val Glu Met Val Glu Gln Asp Val Gln Ala Gln Thr
130 135 140

Ala Leu Pro Gln Ala Ala Leu Asp Pro Thr Val Ser Leu Thr Phe Ser
145 150 155 160

Ser Pro Ile Asp Ser Asn Ala Ile Leu Val Tyr Pro Glu Met Lys Val
165 170 175

Pro His Val Phe Asp Thr Val Ala Pro Thr Thr Thr Thr Val Pro Leu
180 185 190

Asp Gln Thr Gln Leu Leu Asp Glu Leu Val Glu Val Pro Val Leu Thr
195 200 205

His Thr Val Thr Pro Ala Pro Leu Gln Pro Lys Ala Ala Pro Thr Asn
210 215 220

Phe Ala Leu Asp Gln Thr Gln Leu Val Asp Glu Leu Val Thr Val Pro
225 230 235 240

Leu Thr His Thr Leu Val Asn Glu Ser Ala Pro Val Thr Pro Val Val
245 250 255

Val Thr Ser Pro Ala Ala Glu His Ser Phe Ser Ile Thr Thr Val Asp
260 265 270

Lys Ala Asn Leu Thr Asn Ala Leu Ser Gln Thr Val Val Ile Lys Pro

275	280	285
Ala Glu Asp Ser Ala His Gln Ser Ala Val Leu Asp Lys Glu Ile Ala 290 295 300		
Thr Lys Gln Ala Gln Leu Gln Gln Leu Gln Ala Gln Ile Glu Leu Arg 305 310 315 320		
Gln Ala Gln Leu Glu Thr Pro Pro Val Thr Tyr Met Gly Val Glu Glu 325 330 335		
Tyr Lys Leu Leu Pro Val Gln Asp Val Val Pro Val Gln Pro Thr Val 340 345 350		
Ser Phe Glu Met Thr Leu Leu Gln Glu Gln Leu Asp Lys Ala Leu Lys 355 360 365		
His Asn Ala Ala Leu Gln Ile Gln Leu Glu Glu Gln Leu Ala Lys Pro 370 375 380		
Leu Gln Tyr Asp Gln Ser Pro Val Leu Gln Glu Arg Ile Glu Leu Leu 385 390 395 400		
Gln Asn Gln Asn Thr Asn Leu Thr Gln Glu Leu Asn Glu Leu Gln Gln 405 410 415		
Lys Leu Phe Lys Ser Gln Asn Asn Ser Leu Leu Leu Ala Arg Leu Glu 420 425 430		
Glu Glu Asn Arg Thr Leu Lys Gln His Leu Gln Asn Asn Leu Pro Glu 435 440 445		
Ala Asn Gln Leu Asn Phe Val Leu Glu Lys Gln Leu Glu Gln Leu Gln 450 455 460		
Gln Asp Lys His Ser Leu Thr Leu Gln Ile Glu Gln Tyr Lys Phe Asp 465 470 475 480		
Ser Lys Lys His Gln Glu Gln Leu Ala Leu Ile Pro Ser Leu Arg Ser 485 490 495		
Glu Ile Asn Ser Leu Glu Thr Glu Val Ile Ser Leu Lys Gln Thr Asn 500 505 510		
Gln Arg Leu Ser Leu Ile Glu Arg Glu Asn Asn Phe Leu Lys Thr Glu 515 520 525		
Ile Lys Gln Leu Arg Glu Thr Lys Leu Asn Asp Glu Asn Thr Lys Tyr 530 535 540		
Arg Asn Leu Leu Lys Gln Tyr Glu Leu Met Arg Ala Asp Ser Asp Ala 545 550 555 560		
Lys Leu Lys Glu Leu Glu His Glu Gln His Leu Ala His Gln His His 565 570 575		

Gln Glu Gln Leu Ala Gln Leu Gln Arg His Asn Glu Ala Leu Val Lys
 580 585 590
 Glu Leu Asp Gln Val Lys Ala Thr Asn Phe Glu Leu Gly Leu Ala Ala
 595 600 605
 Gln Gly Phe Glu Gln Gln Lys Val Val Leu Glu Gln Lys Asn Ser Ser
 610 615 620
 Leu Leu Ala Ser Leu Gln Ala Ala Glu Glu Asn Val Gln Ala Leu Gly
 625 630 635 640
 Ile Thr Asn Ser Glu Leu Gln Asn Gln Leu Asn Val Leu Glu Phe Thr
 645 650 655
 His Lys Glu Lys Thr Ala Phe Asp Ser Lys Thr Leu Thr Leu Thr Lys
 660 665 670
 Gln Gln Leu Glu Gln Thr Gln Phe Asp Leu Ser Leu Thr Gln Glu Gln
 675 680 685
 Leu Ala Thr Phe Lys Gln Gln Asn Gln Ser Leu Thr Asp Lys Leu Met
 690 695 700
 Ala Ser Glu Thr Gln Leu Asn His Leu Gln Gln Ser Asp Glu Asn Leu
 705 710 715 720
 Thr Gln Leu Gln Thr Gln His Glu Leu Leu Gln Glu Ser Tyr Asn Lys
 725 730 735
 Leu Gln Asp Glu Ala Asn His Thr Gln Gln Gln Phe His Gln Ala Gln
 740 745 750
 Asn Glu Leu Asp Ala Ala His Gln Gln Leu Ala Leu Phe Lys Gln Asn
 755 760 765
 Asn Glu Glu Leu Thr Asp Lys Cys Ser Asn Ile Gln Asn Glu Leu His
 770 775 780
 Asp Leu Asn Arg Val Lys Thr Asn Trp Glu Asn Leu Asn Thr Glu His
 785 790 795 800
 Asn Leu Leu Gln Asp Lys Tyr Ala Gln Gln Lys Glu Gln Met Gln His
 805 810 815
 Glu His Ser Asn Leu Ala Gln Ile Gln Ala Glu His Glu Leu Leu Gln
 820 825 830
 Glu Ser Tyr Asn Lys Val Lys Ala Glu Leu Asn Glu Ile Gln Ile Thr
 835 840 845
 Asn Leu Asn Glu Ala Asn Ala Gln Tyr Gln Asp Leu Leu Ser Ala Tyr
 850 855 860

Glu Leu Leu Gln Ser Asn His Asn Lys Leu Lys Gln Glu Leu Gln Val
865 870 875 880

Leu Asn Gln Val Asn Leu Glu Lys Gln Gln Leu Ala Gln Lys Leu His
885 890 895

Asn Thr His Gln Ser Leu Ser Gln Thr His Ala Glu Leu Thr Gln Leu
900 905 910

Gln Ala Ala Tyr Asn Asn Leu Gln Ala Thr Pro Pro Val Ser Asp Glu
915 920 925

Leu Leu Glu Gln Phe Asn Gln Val Gln Leu Glu Lys Gln Arg Leu Leu
930 935 940

Gln Gln Asn Leu Ala Leu Val His Glu Leu Gln Tyr Phe Asn Glu Leu
945 950 955 960

Asn Ser Ser Gln Thr His Glu Ile Lys Thr Lys Gln Asp Glu Thr Val
965 970 975

Lys Glu Val Ile Ile Val Glu Lys Glu Ile Pro Val Pro Pro Glu Lys
980 985 990

Lys Pro Arg Leu Lys Lys Arg Asp Ile Val Ile Glu Asn Lys Glu Asp
995 1000 1005

Ala Leu Gly Lys Leu Ser Lys Lys Glu Arg Ile Gln Ala Tyr Ala
1010 1015 1020

Glu Arg Leu Ala Lys Ile Asn Gly Lys Gln
1025 1030

<210> 76
<211> 22
<212> PRT
<213> M. pneumoniae

<220>
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<223> A05_orf139 Protein

<220>
<221> misc_feature
<223> gi|1673719

<400> 76

Met Arg Trp Cys Arg Gly Ser Pro Tyr His Trp Asn Leu Asp Arg Arg
1 5 10 15

Asn Pro Asp Phe Pro Ala
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<210> 77
<211> 103
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> B01_orf103b Protein

<220>
<221> misc_feature
<223> gi|1673772

<400> 77

Met Ser Ser Val Phe Ser Lys Pro Asn Leu Lys Arg Pro Ser Phe Asp
1 5 10 15
Val Lys Asn Leu Thr Lys Pro Ser Arg Leu Leu Ser Ala Thr Leu Arg
20 25 30
Ser Ser Cys Ala Phe Leu Ser Ser Ala Ser Phe Phe Ala Cys Ser Leu
35 40 45
Cys Phe Phe Cys Cys Ser Ser Ile Ser Phe Cys Ser Leu Ala Ser Ser
50 55 60
Ser Ala Arg Leu Arg Tyr Ser Ser Ser His Ser Phe Phe Cys Trp Val
65 70 75 80
Leu Phe Ser Arg Ser Gly Leu Ala Tyr Ser Ser Ser Asn Leu Ser Ser
85 90 95
Lys Ser Ser Arg Leu Arg Ser
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<210> 78
<211> 112
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> VxpSPT7_orf112 Protein

<220>
<221> misc_feature
<223> gi|1674374

<400> 78

Met Ile Asp Arg Phe Phe Trp Ser Ile Leu Ser Phe Leu Leu Thr Asn
1 5 10 15

Leu Val Phe Leu Phe Val Ala Phe Leu Ile Leu Ile Ile Tyr Leu Ile
20 25 30

Ser Glu Ile Thr Gln Gln Phe Ala Phe Ala Phe Ile Ala Thr Ile Val
35 40 45

Phe Ile Ile Phe Tyr Asn Ile Leu Phe Leu Ser Tyr Leu Leu Thr Met
50 55 60

Tyr Ile Lys Gly Leu Lys Gln Ile Glu Gln Lys Ser Arg Tyr Leu Leu
65 70 75 80

Leu Val Leu Asp Val Lys Ala Asp Glu Leu Leu Pro Phe Ser Phe Leu
85 90 95

Gly Ser Leu Arg Lys Ser His Met Leu Glu Glu Met Leu Leu Glu Gln
100 105 110

<210> 79
<211> 147
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> B01_orf147 Protein

<220>
<221> misc_feature
<223> gi|1673775

<400> 79

Met Pro Ser Ser Ala Phe Lys Ile Asn Leu Ser Val Ser Pro Trp Phe
1 5 10 15

Phe Cys Ser Thr Trp Ser Ser Leu Ile Cys Trp Pro Trp Thr Ile Thr
20 25 30

Thr Ser Val Ser Arg Ser Thr Leu Ser Ser Thr Thr Trp Ile Leu Trp
35 40 45

Thr Trp Leu Phe Asn Ser Val Ser Ile Phe Val Ser Arg Trp Ser Phe
50 55 60

Asp Phe Leu Tyr Ser Leu Asn Ser Leu Arg Val Thr Tyr Ser Val Phe
65 70 75 80

Thr Gly Ile Thr Gly Leu Leu Ser Leu Asn Cys Leu Leu Lys Leu Pro

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<210> 80
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<213> M. tuberculosis
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Met Ala Ile Ala Asn Pro Ala Glu Pro Gly Ala Ala Gly Arg His His
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Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala
35 40 45

Ala Gly Arg His His Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp
50 55 60

Arg Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr
65 70 75 80

Pro Glu Pro Gly Ala Ala Gly Arg His His Gln Pro Arg Gly Asp Arg
85 90 95

Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg
100 105 110

Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala Ala Gly Arg His His Gln
115 120 125

Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro Gln
130 135 140

Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala Ala
145 150 155 160

Gly Arg His His Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg
165 170 175

Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro
180 185 190

Glu Pro Gly Ala Ala Gly Arg His Trp Leu Asp Gln Arg Pro Val Val
195 200 205

Pro Asp Gly Val Gly Lys Ser Asp Ser
210 215

<210> 81
<211> 27
<212> PRT
<213> M. tuberculosis

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<221> misc_feature
<223> hypothetical protein Rv1572c

<220>
<221> misc_feature
<223> gi|2117265

<400> 81

His Gly Gln Pro Arg Thr Asn Thr Phe His His His Glu Lys Leu Leu
1 5 10 15

Arg His Asn Asp Glu Asp Asn His Asp Asp Pro
20 25

<210> 82
<211> 73
<212> PRT
<213> M. tuberculosis

<220>
<221> misc_feature
<223> hypothetical protein Rv0378

<220>
<221> misc_feature
<223> gi|2909499

<400> 82

Met Ser Gly Arg Trp Glu Ala Gly Asn Ala Asp Gly Asn Gly Gly Ser
1 5 10 15

Ala Gly Leu Ile Gly Ser Gly Gly Ala Gly Gly Asp Gly Gly Ser Gly
20 25 30

Gly Ala Thr Gly Ala Gly Gly Glu Gly Gly Asp Ala Gly Ala Ser Gly
35 40 45

Ser Ile Asn Gly Asn Ala Gly Asp Pro Gly Asn Ser Gly Glu Arg Gly
50 55 60

Ala Val Gly Lys Pro Gly Ala Pro Gly
65 70

<210> 83

<211> 47

<212> PRT

<213> N. meningitis MC58

<220>

<221> misc_feature

<223> hypothetical protein

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<223> gi|7225315

<400> 83

Met Glu Trp Ala Glu Asn Glu Thr Val Lys Leu Ala Gln Lys Trp Glu
1 5 10 15

Gln Glu Gln Lys Lys Gln Gln Ile Gln Gln Lys Lys Glu Thr Glu Lys
20 25 30

Ser Pro Lys His Lys Ala Ser Arg Asp Asp Trp Glu Met Glu Arg
35 40 45

<210> 84

<211> 107

<212> PRT

<213> N. meningitis MC58

<220>

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<223> hypothetical protein

<220>

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<223> gi|7226708

<400> 84

Met Lys Lys Leu Leu Ile Ala Ala Met Met Ala Ala Ala Leu Ala Ala
1 5 10 15
Cys Ser Gln Glu Ala Lys Gln Glu Val Lys Glu Ala Val Gln Ala Val
20 25 30
Glu Ser Asp Val Lys Asp Thr Ala Ala Ser Ala Ala Glu Ser Ala Ala
35 40 45
Ser Ala Val Glu Glu Ala Lys Asp Gln Val Lys Asp Ala Ala Ala Asp
50 55 60
Ala Lys Ala Ser Ala Glu Glu Ala Val Thr Glu Ala Lys Glu Ala Val
65 70 75 80
Thr Glu Ala Ala Lys Asp Thr Leu Asn Lys Ala Ala Asp Ala Thr Gln
85 90 95
Glu Ala Ala Asp Lys Met Lys Asp Ala Ala Lys
100 105

<210> 85
<211> 98
<212> PRT
<213> N. meningitis MC58

<220>
<221> misc_feature
<223> hypothetical protein

<220>
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<223> gi|7226768

<400> 85

Met Lys Lys Ser Leu Phe Ala Ala Ala Leu Leu Ser Leu Val Leu Ala
1 5 10 15
Ala Cys Gly Gly Glu Lys Ala Ala Glu Ala Pro Ala Ala Glu Ala Pro
20 25 30
Ala Ala Glu Ala Pro Ala Thr Glu Ala Pro Ala Ala Glu Ala Pro Ala
35 40 45
Ala Glu Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu Ala Ala Thr
50 55 60

Glu Ala Pro Ala Ala Glu Ala Ala Ala Thr Glu Ala Pro Ala Ala Glu
65 70 75 80

Ala Ala Ala Thr Glu Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu Ala
85 90 95

Ala Lys

<210> 86
<211> 34
<212> PRT
<213> N. meningitis MC58

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|7227030

<400> 86

Met Pro Trp Lys Ile Ser Thr Thr Thr Asn Leu Thr Pro Val Pro Ser
1 5 10 15

Ala Asn Leu Ser Ala Leu Pro Thr Thr Arg Cys Thr Thr Pro Pro Pro
20 25 30

Thr Pro

<210> 87
<211> 114
<212> PRT
<213> N. meningitis MC58

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|7227104

<400> 87

Met Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro
1 5 10 15

Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly
 20 25 30
 Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser
 35 40 45
 Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro
 50 55 60
 Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly
 65 70 75 80
 Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Pro
 85 90 95
 Ser Phe Pro Arg Arg Arg Glu Ser Arg Pro Val Gly Ala Glu Thr Tyr
 100 105 110

Arg Val

<210> 88
 <211> 120
 <212> PRT
 <213> N. meningitis MC58

 <220>
 <221> misc_feature
 <223> hypothetical protein

 <220>
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 <223> gi|7226645

 <400> 88

Met Ile Ala Lys Ser Leu Phe Phe Arg Cys Gln Lys Ile Tyr Phe Ile
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 Tyr Phe Ile Leu Phe Ile Cys Leu Tyr Leu Asn Ile Ser Tyr Asp Gly
 20 25 30
 Glu Ile Phe Ile Tyr Phe Ile Ile Asn Phe Thr His Leu Leu Ile Cys
 35 40 45
 His Gly Ile Leu Leu Val Phe Cys Arg Ile Phe Pro Tyr Glu Asn Ile
 50 55 60
 Pro Phe Thr Ile Phe Leu Asn Phe Ile Ser Leu Phe Leu Ile Phe Leu
 65 70 75 80
 Pro Leu Ile Phe Thr Ile Arg Glu Leu Ile Asp Ser Tyr Tyr Ile Glu

85	90	95
Ser Ile Ile Asn Leu Phe Leu Ile Leu Ile Pro His Val Ile Phe Leu		
100	105	110

Ile Tyr Leu Lys Gly Lys Gln Ile
115 120

<210> 89
 <211> 78
 <212> PRT
 <213> Pseudomonas aeruginosa

<220>
 <221> misc_feature
 <223> AE004587_5 hypothetical protein

<220>
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 <223> gi|9947556

<400> 89

Met Lys Lys Thr Val Thr Leu Ala Leu Leu Leu Ala Ala Ser Leu Gly
1 5 10 15

Leu Ala Ala Cys Asp Lys Lys Glu Glu Asp Lys Ala Ala Ala Pro Ala
20 25 30

Ala Pro Ala Thr Glu Thr Gln Pro Ser Ala Pro Ala Thr Pro Pro Ala
35 40 45

Glu Pro Ser Ala Pro Ala Pro Ser Ser Asp Thr Pro Ala Thr Pro Gln
50 55 60

Thr Pro Ala Pro Thr Pro Glu Gln Pro Gln Gln Asn Gln Gln
65 70 75

<210> 90
 <211> 52
 <212> PRT
 <213> Pseudomonas aeruginosa

<220>
 <221> misc_feature
 <223> AE004746_3 hypothetical protein

<220>
 <221> misc_feature
 <223> gi|9949353

<400> 90

Met Ser Leu Gly Thr Ile Leu Leu Ile Ile Leu Ile Leu Leu Ile
1 5 10 15

Gly Gly Leu Pro Val Phe Pro His Ser Arg Asn Trp Gly Tyr Gly Pro
20 25 30

Ser Gly Ile Ile Gly Ala Leu Leu Val Val Leu Leu Val Leu Leu Leu
35 40 45

Leu Gly Met Ile
50

<210> 91

<211> 126

<212> PRT

<213> Pseudomonas aeruginosa

<220>

<221> misc_feature

<223> AE004708_10 hypothetical protein

<220>

<221> misc_feature

<223> gi|9948900

<400> 91

Met Leu Lys Leu Phe Ala Thr Gly Leu Ala Ala Ser Phe Leu Leu Leu
1 5 10 15

Pro Pro Ala Gln Ala Ala Pro Pro Ala Pro Tyr Gly Val Gln Pro His
20 25 30

Gln Gln Ala Val Gln Arg Ala Gly Glu Gln Arg Gln Arg Gln Leu Gln
35 40 45

Glu Gln Arg Gln Arg Phe Asp Glu Gln Arg Leu Gln Leu Gln Gln Asp
50 55 60

Gln Leu Gln Arg Gln Gln Gln Asn Leu Gln Arg Gln Arg Gln Gln Arg
65 70 75 80

Gln Met Gln Asp Asn Leu Ile Arg Gln Gln Gln Leu Asp Gln Gln Arg
85 90 95

Trp Arg Leu Glu Gln Asp Gln Arg Arg Leu Asp Ser Glu Arg Arg Gln
100 105 110

Leu Glu Asn Arg Arg Arg Gln Ser Gln Ser Pro Ala Ile Arg
115 120 125

<210> 92
<211> 101
<212> PRT
<213> Pseudomonas aeruginosa

<220>
<221> misc_feature
<223> AE004643_2 hypothetical protein

<220>
<221> misc_feature
<223> gi|9948180

<400> 92

Met Ser Ala Asp Glu Lys Arg Ile Arg Glu Phe Ala Tyr Gln Ile Trp
1 5 10 15
Glu Ser Glu Gly Cys Pro Asp Gly Gln Ala Glu Arg His Trp Ala Met
20 25 30
Ala Arg Gln Leu Ala Glu Ala Glu Ala Ala Ala Ala Pro Lys Lys
35 40 45
Thr Arg Gly Arg Ala Lys Ala Ala Lys Glu Thr Pro Ala Leu Leu Gln
50 55 60
Ala Pro Ala Ala Lys Pro Arg Lys Pro Arg Ala Ala Ser Pro Ala Arg
65 70 75 80
Pro Ala Ser Glu Lys Pro Ala Ala Ala Lys Pro Arg Ser Arg Arg Lys
85 90 95
Pro Glu Ala Gly Glu
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<210> 93
<211> 521
<212> PRT
<213> R. prowazekii

<220>
<221> misc_feature
<223> unknown

<220>
<221> misc_feature
<223> gi|3860652

<400> 93

Met Lys Lys Glu Ile Leu Ser Lys Gln Gly Asn Ile Leu Glu Gln Leu
 1 5 10 15
 Lys Phe Ile Asn Ala Asn Thr Glu Ile Leu Thr Glu His Ser Lys Ala
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 Ile Leu Lys Asp Lys Leu Lys Glu Leu Ser Lys Gln Leu Asp Glu Ile
 35 40 45
 Ser Ser Asn Lys Leu Val Gly Phe Ile Leu Asp Glu Asn Lys Ile Asn
 50 55 60
 Thr Asn Phe Lys Asn Val Pro Phe Ser Glu Lys Lys Val Arg Glu Gln
 65 70 75 80
 Val Asn Asn Leu Asn Asn Lys Ile Leu Glu Lys Ile Phe Leu Lys Asp
 85 90 95
 Asp Gly Thr Ile Thr Glu Gln Asp Leu Thr Lys Ile Leu Gln Lys His
 100 105 110
 Lys Glu Thr Val Leu Ile Lys Asn Leu Thr Lys Ala Ile Val Tyr Ile
 115 120 125
 Asp Gly Asn Lys Asn Asn Glu Thr Val Asn Lys Thr Leu Glu Lys Cys
 130 135 140
 Leu Glu Glu Thr Thr Pro Glu Gln Gln Gly Met Ile Leu Asp Val Leu
 145 150 155 160
 Thr Asn Asn Thr Arg Ile Arg Lys Ala Leu Ile Thr Lys Ile Glu Arg
 165 170 175
 Glu Gln Arg Gln Glu His Asn Gln Lys Leu Asn Lys Asn Ile Ala Gly
 180 185 190
 Asp Thr Phe Val Asp Ala Leu Lys Lys Ala Leu Val His Arg Thr Ser
 195 200 205
 Asn Pro Glu Thr Ile Gln Lys Ser Leu Glu Arg Arg Lys Lys Glu Thr
 210 215 220
 Pro Lys Asn Leu Asn Val Trp Asp Arg Ile Ser Gln Asn Ile Pro Asn
 225 230 235 240
 Leu Asn Asn Gln Asn Asp Asn Gln Asn Gly Gln Asp Glu Asn Asn Lys
 245 250 255
 Glu Trp Glu Glu Ser Asn Gln Asn Ala Asp Tyr Leu Asn Asn Thr Asn
 260 265 270
 Ile Tyr Arg Ile Thr Lys Ala Lys Gln Asp Leu Glu Lys Ala Val Lys
 275 280 285
 Glu Thr Ile Asn Lys Phe Ser Ala Met Ser Thr Leu Ile Lys Asp Asn

290	295	300
Thr Ile Lys Asn Thr Met Ala Tyr Gln Lys Tyr Leu Lys Gly Ala Glu 305	310	315 320
Asp Gln Leu Ala Leu Ala Lys Glu Lys Gly Lys Glu Leu Ile Glu Asn 325	330	335
Ser Val Gln Thr Phe Lys Ile Ile Pro Lys Lys Tyr Gln Asp Asp Met 340	345	350
Asn Glu Asn Trp Gln Asn Tyr Leu Ser Pro Glu Glu Ile Ile Glu Leu 355	360	365
Thr Ala Leu Asn Glu His Thr Asn Thr Leu Thr Ser Asn Lys Asn Lys 370	375	380
Ser Gly Tyr Phe Thr Ser Thr Ala Glu Ala Leu Gln Cys Lys Thr Lys 385	390	395 400
Gln Gln Glu Tyr Tyr Thr Leu Leu Ser Lys Leu Lys Lys Ile Gly Ile 405	410	415
Glu Lys Gln Gln Lys Lys Leu Val Lys Asp Tyr Val Asp Glu Met Ile 420	425	430
Thr Asn Ala Lys Gln Ala Val Lys Lys Ile Glu Arg Thr Leu Glu Lys 435	440	445
Val Asn Gln Lys Lys Glu Asn Lys Tyr Glu Phe Ser Glu Ser Ser Ala 450	455	460
Leu Ile Ser Lys Glu Ile Leu Asp Ala Gln Ala Arg Leu Glu Asn Ala 465	470	475 480
Lys Gln Lys Ile Glu Phe Ile Lys Leu Lys Gln Ile Ile Ser Asp Lys 485	490	495
Arg Gln Val Asn Ser Ser Asp Glu Asp Ser Asp Asp Asp Ser Lys Lys 500	505	510
Lys Cys Asn Gln Thr Lys Ser Arg Thr 515	520	

<210> 94
 <211> 143
 <212> PRT
 <213> R. prowazekii

<220>
 <221> misc_feature
 <223> unknown

<220>

<221> misc_feature
<223> gi|3860651

<400> 94

Met Lys Ile Gln Met Met Ile Leu Lys Lys Asn Ala Ile Lys Leu Lys
1 5 10 15
Val Glu Leu Glu Asn Ala Gln Lys Asp Ile Asn Gln Ala Lys Lys Asn
20 25 30
Leu Glu Asn Ala Glu Ala Lys Asn Glu Ala Leu Gln Arg Gln Ile Ile
35 40 45
Leu Asn His Asn Gln Asn Glu Val Asn Ser His Thr Thr Lys Asn Gln
50 55 60
Glu Lys Phe Lys Thr Asp Asn Val Thr Glu Glu Tyr Leu Glu Asp Met
65 70 75 80
Ala Leu Met Phe Lys Asn Ser Glu Asp Thr Ala Glu Gln Lys Glu Glu
85 90 95
Val Asn Cys Gln His His Glu Glu Gln Asn Arg Gln Lys Gln Glu His
100 105 110
Ile Asn Thr Glu Glu Glu Ala Val His Lys Glu Lys Ile Ile His Ile
115 120 125
Thr Glu Glu Thr Glu Thr Glu Ala Phe Lys Lys Glu Ile Asp Leu
130 135 140

<210> 95
<211> 369
<212> PRT
<213> T. pallidum

<220>
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<223> conserved hypothetical protein

<220>
<221> misc_feature
<223> gi|3322751

<400> 95

Met Cys Gln Lys Ser Ser Pro Cys Thr Tyr Ala Arg Val Arg Ser Leu
1 5 10 15
Pro Ser Val Arg Leu Phe Ser Phe Leu Ala Leu Ala Phe Ala Ser Phe
20 25 30

115/155

Leu Arg Ala Glu Asp Ala Phe Asp His Phe Arg Glu Gly Glu Arg Leu
35 40 45

Leu Ser Leu Gln Gln Ala Gln Gln Ala Ile Gly Pro Leu His Lys Ala
50 55 60

Ala Gln Gln Lys Pro Ala His Pro Lys Ala Ala Leu Tyr Leu Gly Met
65 70 75 80

Ala Tyr Leu Gln Thr Gly Arg Tyr Thr Gln Ala Ile Gln Trp Leu Gln
85 90 95

Asn Pro Pro Val His Ser Gln Glu Tyr Ala His Leu Tyr Ala Tyr Asn
100 105 110

Leu Gly Asn Val Tyr Phe Val Gln His Arg Tyr Glu Glu Ala Gln His
115 120 125

Ala Tyr Glu Gln Ala Leu Ala Leu Lys His Asp Tyr Pro Pro Ala Leu
130 135 140

Leu Asn Arg Ala Asn Thr Ala Met Lys Arg Gln Ala Tyr Ala His Ala
145 150 155 160

Leu Ala Asp Tyr Lys Lys Tyr Val Ser Gln Asn Pro Thr Ala Ser Gln
165 170 175

His Tyr Glu Val Gln Arg Met Ile Ala Ala Leu Glu Gln Trp Leu Gln
180 185 190

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
195 200 205

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
210 215 220

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
225 230 235 240

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
245 250 255

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
260 265 270

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
275 280 285

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
290 295 300

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
305 310 315 320

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Phe Glu Ala
 325 330 335

Leu Lys Arg Ala Leu Arg Leu Lys Gln Ala Glu Asp Ala Arg Thr Leu
 340 345 350

Ser Thr Gly Ser Glu Asp Thr Val Pro Tyr Gln Glu Glu His Asn Leu
 355 360 365

Glu

<210> 96
 <211> 41
 <212> PRT
 <213> T. pallidum

<220>
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 <223> predicted coding region TP0266

<220>
 <221> misc_feature
 <223> gi|3322546

<400> 96

Met Val Arg Val Gln Arg Arg Val Leu Lys Asn Phe Met Arg Val Val
 1 5 10 15

Gly Val Asp Lys Gly Tyr Arg Leu Trp Val Glu Trp Leu Ser Cys Val
 20 25 30

Cys Cys Gly Tyr Val Val Arg Ala Glu
 35 40

<210> 97
 <211> 38
 <212> PRT
 <213> Vibrio cholerae

<220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|9654409

<400> 97

Met Ser Lys Gln Glu Met Lys Lys Pro Gln Leu Ser Leu Lys Glu Lys
1 5 10 15

Arg Lys Leu Lys Gln Glu Lys Ala Gln Glu Ser Ser Val Ile Lys Pro
20 25 30

Arg Lys Ser Lys Gly Arg
35

<210> 98
<211> 85
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9654544

<400> 98

Met Phe Leu Ser Phe Ile Cys Phe Tyr Ile Phe Lys Asn Gly Ser Tyr
1 5 10 15

Phe Ser Phe Ile Cys Leu Val Gly Cys Phe Gln Phe Phe Asp Phe Phe
20 25 30

Val Val Val Phe Ile Gly Phe Leu Phe Leu Phe Cys Ser Phe Gly Leu
35 40 45

Val Asp Phe Ser Phe Phe Tyr Phe Val Leu Ile Val Phe His Leu Phe
50 55 60

Gly Val Asp Leu Leu Ser Trp Phe Gly Trp Trp Gln Val Phe Leu Phe
65 70 75 80

Cys Asn Phe Ile Glu
85

<210> 99
<211> 43
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>

<221> misc_feature
<223> gi|9654912

<400> 99

Met Leu Asn His Leu Leu Val Arg Leu Thr Ile Gly Cys Leu Leu Val
1 5 10 15
Leu Gly Ile Lys Leu Ser Ala Leu Tyr Phe Leu Pro Met Val Leu Leu
20 25 30
Leu Asn Thr His His Lys Glu Phe Phe Gly Trp
35 40

<210> 100
<211> 31
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9656707

<400> 100

Met Pro Arg His Pro Phe Val Phe Val Val Ile Pro Lys Pro Pro Phe
1 5 10 15
Leu Ala Val Val Ile Val Leu Arg Phe Val Val Thr Arg Tyr Leu
20 25 30

<210> 101
<211> 88
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9657609

<400> 101

Met Leu Ser Leu Ala Val Pro Leu Leu Phe Met Ser Leu Leu Gly Phe
1 5 10 15

Lys Leu Lys Leu Pro Tyr Gly Leu Leu Met Gly Leu Ile Ile Leu Thr
20 25 30

Leu Leu Leu Gly Trp Leu Gly Asn Val Ser Leu Leu Pro Val Leu Val
35 40 45

Val Leu Phe Phe Met Ser Pro Leu Leu Leu Ala Thr Lys Arg Ala Pro
50 55 60

Trp Gln Ser Ile Leu Phe Gly Val Gly Cys Leu Leu Pro Gln Leu Val
65 70 75 80

Gln Phe Val Met Leu Asn Gln Arg
85

<210> 102
<211> 33
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9657724

<400> 102

Met Arg Arg Leu Leu Cys Leu Ser Phe Asn Thr Leu His Leu Asn Gln
1 5 10 15

Ile Asn Asp Asn Gln Leu Lys Ser Leu Thr Lys Leu Arg Ile Ile Leu
20 25 30

Asn

<210> 103
<211> 34
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>

<221> misc_feature
<223> gi|9657931

<400> 103

Met Gly Lys Ser Met Pro Ile Gln Leu Leu Leu Leu Ser Ile Pro Phe
1 5 10 15
Leu Leu Asp Ala Ala Thr Pro Ser Arg Leu Gly Ile Lys Ile Leu Ile
20 25 30
Leu Lys

<210> 104
<211> 36
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9658035

<400> 104

Met Gly Tyr Pro Ser Met Ala Ala Ala Leu His Ala Ala Ala Leu Asn
1 5 10 15
Ile Ala Leu Asn Ile Gln Leu Asn Ile Ser Met Arg Ala Met Leu Leu
20 25 30
Ala Phe Leu Glu
35

<210> 105
<211> 38
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9658254

<400> 105

Met Leu Ile Arg Glu Leu Ala Leu Ala Ala Tyr Gln Phe His Arg Tyr
1 5 10 15

Phe Lys Ile His Phe Met Phe Gln Phe Lys Val Phe Leu Phe Leu Ala
20 25 30

Lys Gly Phe Phe Ser Phe
35

<210> 106

<211> 35

<212> PRT

<213> Vibrio cholerae

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|9656580

<400> 106

Met Lys Leu Asn Asp Leu Asn Lys Lys Pro Leu Val Ile Lys Lys Thr
1 5 10 15

Ala Leu Ser Phe Gln Lys Leu Lys Lys Leu Gln Gln Pro Val Lys Lys
20 25 30

Phe His Phe
35

<210> 107

<211> 665

<212> PRT

<213> Plasmodium falciparum

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|3845248

<400> 107

Met	Gln	Tyr	Phe	Phe	Leu	Val	Phe	Leu	Ala	Val	Leu	Ala	Lys	Gly	Phe	1	5	10	15
Leu	Arg	Asn	Lys	Glu	His	Ala	Asn	Leu	Ile	Asn	Ser	Tyr	Asn	Asp	Ile	20	25	30	
Val	Glu	Asp	Ile	Asn	Ile	Lys	Lys	Glu	Glu	Lys	Ser	Ser	Ser	Glu	Pro	35	40	45	
Pro	Phe	Ile	Pro	Ile	Lys	Asn	Lys	Ile	Asp	Asn	Val	His	Thr	Lys	Asn	50	55	60	
Asn	Asn	Gln	Tyr	Asn	Leu	His	Asn	Asn	Lys	Ser	Asn	Lys	Thr	His	Leu	65	70	75	80
Thr	Tyr	Gly	Thr	His	Thr	Ser	Phe	Leu	Gln	Asn	Cys	Thr	Ile	Asn	Asp	85	90	95	
Cys	Val	Asp	Val	Asp	Asn	Lys	Asp	Ser	Glu	Ile	Asn	Asn	Ile	Thr	Lys	100	105	110	
Glu	Lys	Asp	Asp	Asn	Asn	Asn	Asn	Asn	Gly	Thr	Lys	Gln	Ile	Glu	Glu	115	120	125	
Lys	Asn	Lys	Ile	Asn	Lys	Ser	Asp	Leu	His	Arg	Gln	Asn	Glu	Leu	Asn	130	135	140	
Leu	Gln	Ser	Gly	Lys	Asn	Glu	Gln	Asp	Ile	Asn	Lys	Asn	Glu	Lys	Gly	145	150	155	160
Lys	Gln	Asp	Ile	Ser	Asn	Ser	Asn	Ala	Glu	Asn	Lys	Lys	Asp	Val	Lys	165	170	175	
Glu	Gly	Val	Lys	Glu	Leu	Glu	Glu	Lys	Lys	Lys	Glu	Glu	Lys	Ile	Ser	180	185	190	
Asp	Asp	His	Lys	Val	Glu	Glu	Asn	Lys	Lys	Ser	Asp	Asp	His	Lys	Val	195	200	205	
Glu	Glu	Asn	Lys	Lys	Ser	Asp	Asp	His	Lys	Val	Glu	Glu	Asn	Lys	Lys	210	215	220	
Ser	Asp	Asp	His	Lys	Ile	Glu	Glu	Val	Lys	Lys	Val	Glu	Glu	His	Glu	225	230	235	240
Glu	Asp	Glu	Glu	Glu	Asp	Lys	Lys	Glu	Lys	Lys	Ser	Glu	Asn	Lys	Asn	245	250	255	
Lys	Asp	Glu	Asn	Lys	Asp	Glu	Asn	Asp	Glu	Asp	Asn	Asp	Glu	Ile	Ser	260	265	270	
Asp	Glu	Asp	Glu	Val	Asp	Asp	Asp	Val	Glu	Glu	Asp	Lys	Asn	Glu	Asn	275	280	285	
Asp	Asp	Ile	Asp	Asp	Asp	Lys	Lys	Glu	Thr	Asp	Lys	Thr	His	Leu	Glu				

Glu Gln Asn Lys Phe Asn Glu Thr Leu Asn Val Ser Thr Asn His Lys
595 600 605

Asn His Tyr Glu Glu Lys Lys Lys Tyr Glu Ser Asn Met Phe Asn Val
610 615 620

Asp Lys Arg Met His Lys Asn Leu Thr Ser Met Asp Thr Ile Leu His
625 630 635 640

Asn Leu Asn Asp Lys Leu Ser His His Lys Asp Leu Lys Asn Val Leu
645 650 655

Asn Asp Lys Lys Lys Lys Lys Asn Lys
660 665

<210> 108

<211> 807

<212> PRT

<213> Plasmodium falciparum

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|3845292

<400> 108

Met Ala Val Glu Ser Lys Pro Asn Asn Ser Ser Lys Glu Lys Asn Glu
1 5 10 15

Glu Asn Asp Ile Ile Asn Lys Cys Asp Asp Ser Asn Lys Ile Asn Gly
20 25 30

Lys Glu Asn Ile Phe Ala Val Glu Lys Val Gly Ile Asn Glu Ser Gly
35 40 45

His Met Ser Asn Asp Asn Ile Asn Lys Asn Gln Glu Lys Asn Lys Lys
50 55 60

Lys Lys Lys Lys Lys Asn Thr His Lys Lys Val Asn Ile Asn Asn Thr
65 70 75 80

His Ile Asn Ile His Thr Thr Asn Asp Lys Asn Asn Gly Gln Asp Ile
85 90 95

Asn Lys Pro Glu Val Ile Glu Arg Asp Asn Ile Ile Asn Ile Lys Asn
100 105 110

Asp Thr Asn Asn Ile Leu Asp Ser Ser Tyr Asn Glu Glu Gly Asn Glu

115 120 125
Asn Asn Arg Asn Asp Ile Asn Asn Asn Asn Asn Asn Asn Asn Ile Asn
130 135 140
Ile Asn Asn Asn Asn Ile Asn Asn Ser Cys Ser Asn Asn Tyr Gly Leu
145 150 155 160
Lys Lys Lys Ile Thr Leu Leu Lys Arg Asn Asp Ile Lys Asp Glu Gly
165 170 175
Tyr Asn Asn Glu Asn Ile Thr Thr Leu Asn Asn Lys Asn Asn Leu Lys
180 185 190
Asn Asn Asn Asn Tyr Asn Asp Asn Arg Asn Asn Asn Asn Asn Asn Lys
195 200 205
Asn Asn Ile Asn Asn Asn Asn Asn Asn Asn Cys Cys Ser Glu Lys Thr
210 215 220
Leu Glu Gln Arg Glu Lys Glu Tyr Asn Lys Ile Arg Ala Arg Ile Phe
225 230 235 240
Ser Asn Phe Asn Lys Lys Gln Lys Asn Val Gln Lys Thr Glu Gln Asn
245 250 255
Asn Leu Asn His Thr Tyr Leu Asn Asn Asn Ile Ile Asn Asn Ile Asn
260 265 270
Asn Gly Asp Asn Gln Tyr Ala Tyr Ile Asn Asn Phe Tyr His Ile Tyr
275 280 285
His Asn Asn Ser Tyr Asn His Ile Tyr Arg Gln Asn Asn Ile Pro Ile
290 295 300
Cys Asn Ile Asn Asn His Ala Pro Asn Ile Glu Lys Leu Asn Asn Pro
305 310 315 320
Tyr Tyr Tyr His Asp Asn His Ile Ala Tyr Thr Asn Tyr Met Tyr Ser
325 330 335
Thr Gln Asn Lys Met Asn Asn Met Lys Thr Lys Gln Ile Gly His Tyr
340 345 350
Gly Ile Asn Asn Glu Asp Asn Asn Asn Asn Asn Asn Asn Ile Asn
355 360 365
Asn Asn Asn Asn Asn Asn Ile Asn Asn Asn Asn Ile Asn Asn Asn Asn
370 375 380
Val Pro Leu Cys Ile Pro Gln Leu Asp Asn Tyr Asn Lys Thr Lys Asn
385 390 395 400
Asn Phe Asn Gln Gly Thr Asn Asn Phe Asn Gln Gly Thr Asn Asn Phe
405 410 415

Asp Ser Asn Ile Ala Leu Leu Tyr Asn Asn Lys Pro Asn Ile Asp Phe
 705 710 715 720
 Asn Asn Phe Gln Leu Asn His Ile Asn Asn His Met Ile Gln Asn Asn
 725 730 735
 Ile Met Thr Asn Asn Val Met Leu Asn Asn Asn Leu Thr Thr Ser Asn
 740 745 750
 Phe Asn Tyr Asn Leu Ile Asn Tyr Ser Tyr Glu Pro Phe Tyr Glu Glu
 755 760 765
 Asn Leu Met Asn Asp Leu Asp Tyr Cys Arg Asp Ile Ser Leu Tyr Glu
 770 775 780
 Lys Arg Tyr Asp Arg Gly Asp Asn Leu Gln Gln Asn His Lys Arg Tyr
 785 790 795 800
 Asp Ile Asp Phe Pro Ser Leu
 805

<210> 109
 <211> 861
 <212> PRT
 <213> Plasmodium falciparum

<220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|4493994

<400> 109

Met Tyr Glu Leu Leu Leu Leu Arg Phe Leu Lys Tyr Glu Cys Asp Tyr
 1 5 10 15
 Asp Asp Ser Glu Asp Ile Leu Asn Lys Tyr Cys Phe Ile Arg Glu Arg
 20 25 30
 Lys Tyr Asn Lys Pro Gly Gly Asn Lys Tyr Ile Pro Arg Asp Arg Ser
 35 40 45
 Asn Asn Asn Asn Asn Ile Gly Asn Asn Val Asn Gly Met Asn Asn Phe
 50 55 60
 Val Leu Leu Asn Asn Asn Asn Asn Met Arg Ile Arg Asn Thr Tyr
 65 70 75 80
 Asn Asn Asn Asn Asn Asn Ile Asn Asn Asn Asn Asn Asn Asn Asn
 85 90 95

Asn	Phe	Asn	Asn	Phe	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Phe	Asn	Asn		
			100					105					110				
Phe	Asn	Asn	Phe	Asn	Asn	Asn	Asn	Asn	Phe	Asn	Asn	Asn	Asn	His	Phe		
		115					120					125					
Asn	Ile	His	Asn	Ile	Asp	Asn	Tyr	Asp	Asp	Ser	Tyr	Val	Lys	Gly	Arg		
	130					135					140						
His	Arg	Gly	Asn	Tyr	Leu	Ser	Ser	Ser	Leu	Asn	Asn	Ile	Asn	Gly	Lys		
145					150					155					160		
Val	Phe	Lys	Asn	Leu	Asp	Asp	Asn	Cys	Tyr	Asn	Leu	Pro	Thr	Asn	Asn		
				165					170					175			
Leu	Tyr	Ile	Asp	Lys	Glu	Gly	Lys	Met	His	Leu	Thr	Gly	Lys	Glu	His		
			180					185					190				
Tyr	Asn	Ala	Ala	Ser	Ser	Asn	Glu	Tyr	Asn	His	Asn	Asn	Lys	Asn	Thr		
		195					200					205					
Asn	Asn	Tyr	Asn	Asn	Asn	Ser	Tyr	Asn	Asn	Asn	Asn	Phe	Cys	Asn	Asn		
	210					215					220						
Asn	Tyr	Asn	Asp	Asn	Asn	Tyr	Asn	Asn	Ser	Asn	Asn	Lys	Gly	Met	Gly		
225					230					235				240			
Asn	Lys	Tyr	Glu	Arg	Ser	Leu	Asn	Tyr	Leu	Lys	Lys	Glu	His	Asp	Met		
				245					250					255			
Val	Asp	Tyr	Glu	Tyr	Asn	Asn	Lys	Gly	Asn	Ile	Arg	Lys	Asn	Asp	Ser		
			260					265					270				
Glu	Lys	Tyr	Trp	Asp	Asn	Pro	Pro	Leu	His	Tyr	Ser	Lys	Lys	Asn	Asn		
		275				280						285					
Tyr	Asp	Ile	Phe	Thr	Leu	Gly	Asp	Ile	Lys	Lys	Tyr	Ala	Lys	Asn	Asn		
	290					295					300						
Glu	Lys	Lys	Gly	Asn	Asn	Lys	Tyr	Met	Asn	Met	His	Asp	Asn	Asn	Ser		
305					310					315					320		
Asn	Asn	Ser	Asn	Asn	Val	Leu	Asn	Asn	Asn	Asn	Met	Asn	Ser	Asn	Ser		
				325					330					335			
Asn	Asn	Tyr	Asn	Asn	Ile	Phe	Lys	Asp	Asn	Asp	Glu	Glu	Asn	Leu	Thr		
			340					345					350				
Lys	Ser	Asn	Phe	Ala	Lys	Trp	Phe	Lys	Asn	Asn	Asn	Asn	Met	Asn	Val		
		355					360					365					
Asn	Glu	Asn	Thr	Asp	Ile	Ile	Lys	Tyr	Leu	Asn	Asn	Lys	Asn	Ser	Gln		
	370					375					380						

Gly His Ser Asp Gly Lys Asn Asn Asn Asn Asn Asn Gly Asn Asn Ile
 385 390 395 400
 Ile Asn Asn Asn Ser Asn Asn Lys Asn Asn Ile Phe Gln Gly Asn Ser
 405 410 415
 Arg Asn Tyr Glu Asn Val Met Tyr Asn Ile Asn Asn Asn Asn Asn Asn
 420 425 430
 Asn Ile Ile Ser Asn Asn Lys Asn Glu Ala Ser Phe Asn Thr Asp Asn
 435 440 445
 Ile Asn Thr Asn Ser Gly Arg Glu Glu Glu Lys Ile Ser Asn Thr Val
 450 455 460
 Ala Glu Leu Leu Met Lys Gln Ile Ser Met Ile Lys Glu Arg Asn Lys
 465 470 475 480
 Gly Leu Asp Val Leu Glu Lys Lys Asn Thr Phe Gly Phe Leu Asp Asn
 485 490 495
 Asn Tyr Gln Asn Tyr Gly Ser Asn Asn Asn Ser Ser Leu Glu Lys Asn
 500 505 510
 Asn Met Lys Glu Asn Asp Ile Tyr Ser Lys Glu Ala Ser Lys Arg Ile
 515 520 525
 Met Asp Ile Phe Arg Thr Leu Asn Ser Asn Gly Leu Val Ser Gln Glu
 530 535 540
 Ser Leu Leu Val Asn Gln Ser Val Leu Asn Asn Asn Asn Asn Tyr Asn
 545 550 555 560
 Asn Tyr Asn Ser Asn Asn Asn Arg Asn Lys Asn Gln Asn Asn Asn Asn
 565 570 575
 Asn Asn Asn Asn Asn Met Asn Asn Met Asn Asn Ser Asn Asn Asn Ile
 580 585 590
 Asn Asn Asn Asn Asn Tyr Tyr Lys Asn Asn His Lys Tyr His Ser Met
 595 600 605
 Asp Asn Val Thr Tyr Lys Lys Ile Phe Ile Asn Asn Tyr Ser Asn Asn
 610 615 620
 Asp Gly Asn Asn Asn Ser Asn Asn Ser Asn Ser Asn Asn Asn Val Glu
 625 630 635 640
 His Tyr Tyr Met Asn Asn Lys Lys Asn Phe Lys Asn Lys Ile Asn Asn
 645 650 655
 Tyr His Asn Leu Pro Asp Asn Lys Asn Asn Met Met Asn Asn Asn Thr
 660 665 670
 Tyr Asn Asn Ile Asn Lys Asn Asn Leu Ser Asn Met Glu Asn Phe Pro

675	680	685
Pro Ser Leu Ser Phe Asn Asn Ser Asp Ile Asn Lys Asn Asn Ala Gln 690 695 700		
Gly Asn Ile Asn Ile Thr Pro Ile Ile Asn Ser Ile Leu Arg Leu Asp 705 710 715 720		
Asn Glu Val Asp Asn Val His Asn Asn Ser Ile Ser Glu Asn Ile Gln 725 730 735		
Asn Ala Lys Val Ser Asn Val Leu Asp Ser Leu Lys Ser Leu Leu Lys 740 745 750		
Ala Ser Lys Ser Gln Gly Asn Asn Asn Tyr Asn Ile Pro Lys Asn Phe 755 760 765		
Asn Asn Asn Asn Asn Asn Asn Asn Asn Ser Lys Phe Ile Asn Tyr Asn 770 775 780		
Ser Gln Gln Tyr Tyr Pro Ser His Gln Gln Gln Gln Gln His Gln 785 790 795 800		
Gln Gln Gln Gln Gln Gln Gln Gln Gln Thr Leu Ile Gln Thr Gln Ile 805 810 815		
Asn Ser Thr His Leu Asn Asp Phe Asn Lys Lys Lys Phe Asn Lys Lys 820 825 830		
Glu Arg Tyr Pro Met Lys Tyr Pro Glu Phe Asp Gly Thr Thr Asn Glu 835 840 845		
Thr Met Met Val Arg Glu Lys Ala Glu Arg Gln Leu Val 850 855 860		

<210> 110
 <211> 54
 <212> PRT
 <213> Plasmodium falciparum

<220>
 <221> misc_feature
 <223> Homologue of C.elegans F49C12.11 protein

<220>
 <221> misc_feature
 <223> gi|4494004

<400> 110

Met	Pro	Leu	Asn	Thr	Gln	Gly	Gly	Lys	Lys	Lys	Pro	Leu	Lys	Ala	Ala
1				5				10						15	

Lys Lys Gly Pro Val Glu Leu Thr Glu Glu Asp Ile Ala Phe Lys Lys
20 25 30

Glu Met Ala Glu Lys Lys Lys Ala Glu Glu Glu Ala Lys Gln Lys Leu
35 40 45

Leu Lys Ala Lys Lys Lys
50

<210> 111
<211> 71
<212> PRT
<213> L. major

<220>
<221> misc_feature
<223> hypothetical protein P1105.01

<220>
<221> misc_feature
<223> gi|6996498

<400> 111

Met Arg Glu Arg Leu Ser Thr Asp Glu Tyr Val Tyr Trp Ser Gly Ile
1 5 10 15

Leu Leu Pro Leu Ile Arg Val Ile Asp Leu Ala Ser Val Asp Ser Pro
20 25 30

Leu Ala Leu Ala Leu Arg Ala Cys Val Cys Val Cys Val Cys Val Cys
35 40 45

Val Cys Val Cys Val Cys Val Cys Val Val Val Phe Leu Pro Leu Pro
50 55 60

Ser Leu Arg Ala Gln Ser Pro
65 70

<210> 112
<211> 923
<212> PRT
<213> L. major

<220>
<221> misc_feature
<223> AC005941_2 L5204.2

<220>
<221> misc_feature
<223> gi|6978417

<400> 112

Met Gln Leu Ser Gln Glu Asp Glu Glu Ala Ile Arg Thr Leu Arg Gly
1 5 10 15
Glu Ile Glu Ala Ala Trp Ala Lys Ala Asp Thr Ala His Glu Gln Glu
20 25 30
Gln Arg Ser Arg Glu Leu Leu His Thr Leu Arg Gln Gln Val Thr Glu
35 40 45
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Ser Leu Glu Ala Glu Gln Arg Glu Arg Ala Ala Lys Glu Ala Ser Val
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Arg Gln Tyr Arg Asp Thr Thr Glu Leu Cys Met Arg Arg Leu Asp Glu
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Arg Gly Val Glu Val Glu Arg Ala Ile Arg Glu Glu Lys Lys Ala Ala
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Lys Glu Ala Glu Gly Thr Ala Gln Glu Ile Gln Ala Ile Ala Arg Gln
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Leu Gln Glu Arg Gln Glu Arg Phe Gly Val Glu Ala Ala Arg Leu Ala
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Ala Ala Glu Arg Glu Asn Thr Ile Leu Thr Arg Glu Leu Pro Gln Arg
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Gln Ala Ala Leu His Glu Gln Gln Asp Glu Leu Lys Arg Glu Glu Lys
225 230 235 240
Gln Leu His Leu Leu Glu Lys Ser Ala Arg Ala Gln Gln Ala Glu Leu
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Ala Ala Leu Val Glu Lys Arg Ala Thr Ala Ala Ala Ala Val Gln Thr
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Arg Ala Asn Ser Val Asp Ala Ala Leu Thr Glu Leu Ala Thr Glu Glu

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His	Gln	Gln	Leu	Glu	Leu	Leu	Arg	Thr	Glu	Asn	Glu	Lys	Met	Arg	Lys
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Glu	Ile	Tyr	Tyr	Ala	Glu	Gln	Asn	His	Glu	Lys	Asn	Thr	Lys	Glu	Ala
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Gln	Gln	Ala	Leu	Leu	Asn	Tyr	His	Arg	Thr	Leu	Asp	Ala	Ile	Arg	Thr
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Arg	Gln	Lys	Thr	Glu	Lys	Ala	Leu	Arg	Glu	Thr	Glu	Ala	Glu	Leu	Leu
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Lys	Thr	Glu	Leu	Ile	Gln	Gln	Glu	Ala	Asp	Met	Cys	Gln	Leu	His	Gly
		450				455					460				
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		530				535				540					
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 Arg Tyr Leu Asp Arg Leu His Thr Lys Glu Val His Gln Glu Lys Leu
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 Leu Ser Gln Ser Arg Ala Arg Val Arg Ala Leu Ala Asp Glu Leu Gly
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 Thr Lys His Asn Val His Cys Trp Arg Ser Met Glu Ser Asn Ala Pro
 625 630 635 640
 Glu Val Leu Asp Ala Leu Ala Lys Val Gln Leu Leu Gln Ala Lys Leu
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 Leu Arg Lys His Gly Glu Leu Lys Glu Lys Thr Asp Leu Val Glu Lys
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 Gly Pro Glu Ala Ala Glu Glu Leu Ala Leu Cys Ala Glu Asn Met Gln
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 Gln Arg Lys Ala Gln Leu Leu Cys Met Thr Asp Ser Leu Ala Glu Ala
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 Glu Leu Gln Asp Leu Lys His Arg Tyr Tyr Gln Glu Lys Thr Lys His
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 Gly Gly Ala Gly Ala Ala Arg Gln Ala Gly Ser Gly Thr Gly Ser Ser
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 Val Gly Asp Gly Asp Gly Ala Val Val Ala Ala Gly Ala Ser Ala Pro
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 Gly Gly Pro Ala Ser Ala Asp Val Glu His Arg Ser Ala Ser Gln Pro
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 Gln Gln Pro His Ser His Ala Gly Gly Ser Ala Ile Val Ser Asn Ser
 835 840 845
 His Asn Gly Val Gln Ala Ala Ala Ser Gly Thr Gly Arg Met Ser Ala
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Ala Asn Ser Gly Arg Val Gly Asn Gly Ser Val Pro Pro Arg Asn Gly
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Arg Arg Arg Ala Pro Leu Ala Glu Ala Ile Leu Asp Thr Leu Thr Ala
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Gly Phe Phe Ser Thr Lys Val Asn Cys His Arg Cys Gly Ile Val Leu
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Cys Ser Lys Cys Ala Ala Thr Lys Thr Val Ile Pro Arg Tyr Tyr Ser
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Asn Glu Thr Val Pro Val Cys Gln Arg Cys Tyr Gln Val Val Glu Arg
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Tyr Lys Glu Arg Gly Ser Val Thr Pro Gly Tyr Val Val His Ser Thr
85 90 95

Thr Ile Ser Ala Thr Pro Ala Arg Ser Ser Pro Val Pro Pro Leu His
100 105 110

Thr Thr Pro Ala Leu Arg Pro His Ala Pro Ser Pro Gln Pro Ala Ser
115 120 125

Val Val Ser Thr Ala Thr Leu Val His Pro Val Glu Glu Asp Ala Val
130 135 140

Ser Thr Lys Pro Ser Val Ser Glu Ala Asp Leu His Ala Leu Arg Ser
 145 150 155 160
 Ile Ile Glu Thr Leu Gln Gln Ala Leu Asn Asp Glu Gln His Asn Ala
 165 170 175
 Ala Leu Ala Ala Thr Ser Ala Ala Glu Gln Leu Arg Thr Ala Lys Glu
 180 185 190
 Glu Asn Thr Ala Leu Lys Ser Thr Ala His Leu Leu Gln Gln Arg Leu
 195 200 205
 Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg
 210 215 220
 Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala
 225 230 235 240
 Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
 245 250 255
 Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
 260 265 270
 Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr
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 Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala
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 Ala Asp Gly Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu
 305 310 315 320
 Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu
 325 330 335
 Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln
 340 345 350
 Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
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 Gln Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp
 370 375 380
 Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln
 385 390 395 400
 Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln
 405 410 415
 Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
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 Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
 450 455 460
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 Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln
 485 490 495
 Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
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 Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala
 515 520 525
 Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
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 Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
 580 585 590
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 595 600 605
 Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Val Asp
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 Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln
 645 650 655
 Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala
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 Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln
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 Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp
 690 695 700
 Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg
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 Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala

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1040						1045					1050								
Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg					
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Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp					
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Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln					
1085						1090					1095								
Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln					
1100						1105					1110								
Val	Ala	Arg	Leu	Ala	Ala	Asp	Gly	Asp	Glu	Ala	Arg	Gln	Gln	Leu					
1115						1120					1125								
Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr					
1130						1135					1140								
Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala					
1145						1150					1155								
Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu					
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Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu					
1175						1180					1185								
Glu	Ala	Gln	Leu	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg					
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Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp					
1205						1210					1215								
Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Val	Ala	Arg					
1220						1225					1230								
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Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg					
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Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln					
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1460						1465					1470			
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1490						1495					1500			
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Ala Arg Gln Gln Leu Ala 1610	Ala Asn Ala Glu Glu 1615	Leu Gln Gln Arg 1620
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Ala Arg Leu Ala Ala Asp 1640	Arg Asp Glu Ala Arg 1645	Gln Gln Leu Ala 1650
Ala Asn Ala Glu Glu Leu 1655	Gln Gln Arg Leu Asp 1660	Thr Ala Thr Gln 1665
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Leu Arg Glu Arg Glu Glu 1760	Ala Arg Gly Glu Thr 1765	Ala Val Ala Gly 1770
Glu Gln Val Gln Leu Tyr 1775	Arg Glu Thr Val Glu 1780	Glu Glu Glu Cys 1785
Leu Lys Glu Glu Arg Trp 1790	Cys Leu Glu Ser Arg 1795	Val Ala Gln Leu 1800
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Asp Asn	Val Gln	Glu Arg	Asp	Met Ala	His His	Arg	Cys Ala	Ala		
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2015			2020			2025				
Arg Val	Arg Val	Gly Gly	Ser	Ser Ala	Val Pro	Gln	Ala Ala	Pro		
2030			2035			2040				
His Arg	Asp Ala	Glu Leu	Ile	Ala Glu	Val Gly	Glu	Arg Leu	Arg		
2045			2050			2055				
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2060			2065			2070				
Arg Glu	Arg Ala	Arg Pro	Leu	Glu Arg	Val Leu	Ala	Glu Lys	Leu		
2075			2080			2085				
Ile Gly	Asp Arg	Arg Thr	Ser	Asp Ala	Glu Glu	Val	Ala Thr	Glu		
2090			2095			2100				
Pro Thr	Gln Val	Arg Arg	Asn	Ala Ala	His Ser	Arg	His Leu	Asp		
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Lys Glu	Gln Gln Leu Leu Arg	Val Ala Arg Glu Leu	Gln Thr Lys
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Ser Arg	Ala Leu Gln Val Leu	Tyr Ala Arg Ala Leu	Asn Arg Pro
2150	2155	2160	
Gln Val	Thr Ser Leu Leu Leu	Thr Ala Asp Gly Asp	Asp Thr Ser
2165	2170	2175	
Tyr Pro	Asp Thr Pro Gln Gln	Gln Gln Gln Gly Thr	Arg Thr Pro
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Leu Arg	Glu Pro Val Tyr Ser	Leu Asp Ser Glu Val	Ala His Tyr
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Gly Arg	Thr Ala Gly Ala Ala	Val Ser Ser Gly Leu	Ala Ser Pro
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Leu Pro	Arg Glu Pro Pro Arg	Ala Arg Met Val His	Arg Ala Val
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Glu Ala	Thr Gly Thr Glu Glu	Asp Thr Gln Val Arg	Leu Thr Ala
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Ala Thr	Glu Ala Tyr Arg Asp	Val Leu Tyr Glu His	Ile Leu Glu
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His His	Thr Ser Gly Gly Gly	Leu Lys Thr Pro Arg	Leu Pro Gly
2285	2290	2295	
Ser Gly	Ile Ile Ser Lys Thr	Arg Ala Met Leu Arg	Ala Leu Glu
2300	2305	2310	
Glu Arg	Leu Gly Ala Ser Arg	Gly Val Gly Arg Gly	Val Asp Pro
2315	2320	2325	
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Cys Ser Lys Cys Ala Ala Thr Lys Thr Val Ile Pro Arg Tyr Tyr Ser
50 55 60
Asn Glu Thr Val Pro Val Cys Gln Arg Cys Tyr Gln Val Val Glu Arg
65 70 75 80
Tyr Lys Glu Arg Gly Ser Val Thr Pro Gly Tyr Val Val His Ser Thr
85 90 95
Thr Ile Ser Ala Thr Pro Ala Arg Ser Ser Pro Val Pro Pro Leu His
100 105 110
Thr Thr Pro Ala Leu Arg Pro His Ala Pro Ser Pro Gln Pro Ala Ser
115 120 125
Val Val Ser Thr Ala Thr Leu Val His Pro Val Glu Glu Asp Ala Val
130 135 140
Ser Thr Lys Pro Ser Val Ser Glu Ala Asp Leu His Ala Leu Arg Ser
145 150 155 160
Ile Ile Glu Thr Leu Gln Gln Ala Leu Asn Asp Glu Gln His Asn Ala
165 170 175
Ala Leu Ala Ala Thr Ser Ala Ala Glu Gln Leu Arg Thr Ala Lys Glu
180 185 190
Glu Asn Thr Ala Leu Lys Ser Thr Ala His Leu Leu Gln Gln Arg Leu
195 200 205
Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
210 215 220
Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala
225 230 235 240

Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
 245 250 255
 Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
 260 265 270
 Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr
 275 280 285
 Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala
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 Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln
 305 310 315 320
 Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp
 325 330 335
 Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg
 340 345 350
 Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala
 355 360 365
 Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
 370 375 380
 Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala
 385 390 395 400
 Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu
 405 410 415
 Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala
 420 425 430
 Gln Val Ala Arg Leu Ala Ala Asn Arg Asp Glu Ala Arg Gln Gln Leu
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 Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln
 450 455 460
 Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala Asp Arg
 465 470 475 480
 Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln
 485 490 495
 Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val
 500 505 510
 Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala
 515 520 525
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530

535

540

Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asn Ala Glu Glu
545 550 555 560

Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu
565 570 575

Ala Gln Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg
580 585 590

Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala
595 600 605

Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn
610 615 620

Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala
625 630 635 640

Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala
645 650 655

Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
660 665 670

Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu
675 680 685

Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
690 695 700

Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
705 710 715 720

Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln
725 730 735

Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
740 745 750

Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala
755 760 765

Asp Gly Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu
770 775 780

Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala
785 790 795 800

Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu
805 810 815

Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln
820 825 830

Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Gly
 835 840 845
 Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln
 850 855 860
 Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val
 865 870 875 880
 Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala
 885 890 895
 Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
 900 905 910
 Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu
 915 920 925
 Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu
 930 935 940
 Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
 945 950 955 960
 Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala
 965 970 975
 Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
 980 985 990
 Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
 995 1000 1005
 Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
 1010 1015 1020
 Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
 1025 1030 1035
 Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
 1040 1045 1050
 Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala
 1055 1060 1065
 Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
 1070 1075 1080
 Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
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 Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu
 1100 1105 1110

Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu	1115	1120	1125
Ala Gln Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln	1130	1135	1140
Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg	1145	1150	1155
Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu	1160	1165	1170
Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr	1175	1180	1185
Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala	1190	1195	1200
Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln	1205	1210	1215
Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg	1220	1225	1230
Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln	1235	1240	1245
Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala	1250	1255	1260
Gln Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg	1265	1270	1275
Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val	1280	1285	1290
Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala	1295	1300	1305
Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln	1310	1315	1320
Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp	1325	1330	1335
Gly Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu	1340	1345	1350
Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu	1355	1360	1365
Ala Gln Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln	1370	1375	1380
Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg			

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Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu
1400 1405 1410
Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
1415 1420 1425
Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala
1430 1435 1440
Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu
1445 1450 1455
Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
1460 1465 1470
Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg
1475 1480 1485
Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
1490 1495 1500
Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg
1505 1510 1515
Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn
1520 1525 1530
Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
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Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Gly Asp
1550 1555 1560
Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln
1565 1570 1575
Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg
1580 1585 1590
Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu
1595 1600 1605
Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
1610 1615 1620
Gln Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala
1625 1630 1635
Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu
1640 1645 1650
Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
1655 1660 1665

Glu Ala	Gln Leu	Ala Arg	Leu	Ala Ala	Asp Gly	Asp	Glu Ala	Arg	
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Gln Gln	Leu Ala	Ala Asn	Ala	Glu Glu	Leu Gln	Gln	Arg Leu	Asp	
1685			1690			1695			
Thr Ala	Thr Gln	Gln Arg	Ala	Glu Leu	Glu Val	Glu	Met Ala	Val	
1700			1705			1710			
Leu Leu	Arg Glu	Arg Glu	Glu	Ala Arg	Gly Glu	Thr	Ala Val	Ala	
1715			1720			1725			
Gly Glu	Gln Val	Gln Leu	Tyr	Arg Glu	Thr Val	Glu	Glu Glu	Glu	
1730			1735			1740			
Cys Leu	Lys Glu	Glu Arg	Trp	Cys Leu	Glu Ser	Arg	Val Ala	Gln	
1745			1750			1755			
Leu Arg	Glu Ala	Ser Ala	Ala	Ala Lys	Gln Gln	Arg	Gln Glu	Val	
1760			1765			1770			
Ala Ala	Lys Ala	Asn Glu	Val	Gln Glu	Arg Leu	Asp	Ser Met	Ala	
1775			1780			1785			
Arg Arg	Cys Ile	Ala His	Glu	Gly Asp	Ala Pro	Gln	Arg Ala	Asp	
1790			1795			1800			
Gly Arg	Asp Asp	Ala Leu	Arg	Gln Leu	Ala Asn	Leu	Arg Glu	Glu	
1805			1810			1815			
Val Lys	Leu Ser	Glu Lys	Gln	Lys Ala	Met Glu	Arg	Val Ile	Pro	
1820			1825			1830			
Gly Val	Arg Glu	Arg Gln	Met	Arg Leu	Glu Ala	Ala	Glu Glu	Gln	
1835			1840			1845			
Arg Ala	Asp Leu	Glu Ala	Arg	Leu Val	Asp Glu	Ala	Gly Asp	Leu	
1850			1855			1860			
Arg Ser	Arg Pro	Ala Ala	Ser	Thr Asn	Glu Val	Asn	Leu Tyr	Arg	
1865			1870			1875			
Asp Leu	Ala Leu	Gln Glu	His	Glu Ala	Ala Gln	Asn	Arg Cys	Thr	
1880			1885			1890			
Thr Leu	Glu Ala	Gln Val	Ala	Ser Leu	Thr Ser	Asp	Arg Asp	Asn	
1895			1900			1905			
Gly Arg	Gln Gln	Glu Ser	Ala	Asp Leu	Ser Glu	Ala	Gln Arg	His	
1910			1915			1920			
Leu Asp	Asn Val	Gln Glu	Arg	Asp Met	Ala His	His	Arg Cys	Ala	
1925			1930			1935			

Ala	Leu	Glu	Glu	Gln	Asn	Ala	Ala	Met	Ala	Ser	Glu	Leu	Gln	Ala
1940						1945					1950			
Val	Lys	Ala	Lys	Leu	Arg	Gln	Ala	Ser	Val	Lys	Ala	Ser	Ser	Leu
1955						1960					1965			
Met	Thr	Arg	Leu	Ser	Ala	Ser	Ser	Ser	Gly	Ala	Gly	Gly	Val	Ser
1970						1975					1980			
Ala	Arg	Val	Arg	Val	Gly	Gly	Ser	Ser	Ala	Val	Pro	Gln	Ala	Ala
1985						1990					1995			
Pro	His	Arg	Asp	Ala	Glu	Leu	Ile	Ala	Glu	Val	Gly	Glu	Arg	Leu
2000						2005					2010			
Arg	Glu	Arg	Gly	Glu	Ala	Met	Arg	Leu	Leu	Ala	Glu	Gly	Val	Glu
2015						2020					2025			
Leu	Arg	Glu	Arg	Ala	Arg	Pro	Leu	Glu	Arg	Val	Leu	Ala	Glu	Lys
2030						2035					2040			
Leu	Ile	Gly	Asp	Arg	Arg	Thr	Ser	Asp	Ala	Glu	Glu	Val	Ala	Thr
2045						2050					2055			
Glu	Pro	Thr	Gln	Val	Arg	Arg	Asn	Ala	Ala	His	Ser	Arg	His	Leu
2060						2065					2070			
Asp	Ser	Arg	Glu	Ala	Gln	Leu	Asp	Glu	Arg	Ala	Ala	Arg	Leu	Arg
2075						2080					2085			
Glu	Lys	Glu	Gln	Gln	Leu	Leu	Arg	Val	Ala	Arg	Glu	Leu	Gln	Thr
2090						2095					2100			
Lys	Ser	Arg	Ala	Leu	Gln	Val	Leu	Tyr	Ala	Arg	Ala	Leu	Asn	Arg
2105						2110					2115			
Pro	Gln	Val	Thr	Ser	Leu	Leu	Leu	Thr	Ala	Asp	Gly	Asp	Asp	Thr
2120						2125					2130			
Ser	Tyr	Pro	Asp	Thr	Pro	Gln	Gln	Gln	Gln	Gln	Gly	Thr	Arg	Thr
2135						2140					2145			
Pro	Leu	Arg	Glu	Pro	Val	Tyr	Ser	Leu	Asp	Ser	Glu	Val	Ala	His
2150						2155					2160			
Tyr	Gly	Arg	Thr	Ala	Gly	Ala	Ala	Val	Ser	Ser	Gly	Leu	Ala	Ser
2165						2170					2175			
Pro	Leu	Pro	Arg	Glu	Pro	Pro	Arg	Ala	Arg	Met	Val	His	Arg	Ala
2180						2185					2190			
Val	Glu	Ala	Thr	Gly	Thr	Glu	Glu	Asp	Thr	Gln	Val	Arg	Leu	Thr
2195						2200					2205			
Ala	Ala	Thr	Glu	Ala	Tyr	Arg	Asp	Val	Leu	Tyr	Glu	His	Ile	Leu

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Glu Ser Asn Gly Leu Gln Gly Val Asp Val Leu Ala Gln Tyr Leu		
2225	2230	2235
Pro His His Thr Ser Gly Gly Gly Leu Lys Thr Pro Arg Leu Pro		
2240	2245	2250
Gly Ser Gly Ile Ile Ser Lys Thr Arg Ala Met Leu Arg Ala Leu		
2255	2260	2265
Glu Glu Arg Leu Gly Ala Ser Arg Gly Val Gly Arg Gly Val Asp		
2270	2275	2280
Pro Ala Val Gln Glu Arg Ser Leu Glu Ala Phe Arg Arg Leu Glu		
2285	2290	2295
Ala Ala Leu Ser Ala Leu Cys Gly Gly Ser His Ala		
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Asp Gln Glu Leu Ser Ile Leu Lys Leu Ile Leu Asp Leu Arg Ser Leu			
20	25	30	
Gly Asp Val Glu Gly Ser Lys Lys Val Arg Arg Arg Val Arg Glu Ala			
35	40	45	
Leu Leu Lys Ser Ser Asp Asp Ser Glu Ala Met Ser Lys Val Asp Asp			
50	55	60	
Ile Ile Arg Arg Gly Lys Arg Thr Gln Ser Lys Leu Asp Gly Ser Tyr			
65	70	75	80
Asp Glu Arg Gln Arg Leu Lys Arg Lys Arg Arg Glu Glu Asp Leu Ala			
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His Thr Asn Ser Phe Val Ser Gly Asp Val Phe His Val Trp Arg Val
35 40 45

Arg Ser Phe His Ser Ala Pro Ser Val Phe Phe Cys Phe Ser Val Cys
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20 25 30

Lys Asp Asp Ala Leu Phe Leu Val Arg Arg Pro Lys Tyr Leu Val Ala
35 40 45

Gln Ala Val Asn Leu Ser Gly Ser Val Val Phe Phe His Ser Leu Arg
50 55 60

Glu Val Asp Val Ser Val Gly Ser Ile Val Val Asn Ser Leu Ala Phe
65 70 75 80

Val Ile Thr Val Leu Met Ser Val Leu Val Leu Arg Glu Gly Leu Leu
85 90 95

Arg Ala Arg Thr Thr Ala Gly Cys Leu Leu Val Met Val Gly Thr Ala
100 105 110

Leu Cys Thr Tyr Ser Ser Ser Ala Ser
115 120

